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# MEDICAL REPOSITORY,

FOR

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CASE of ANEURISM of the FEMORAL ARTERY ; communicated to Dr. EDWARD MILLER, by DAVID HOSACK, M. D. Professor of Materia Medica and Botany, in Columbia College, and one of the Surgeons of the Alms-house of the City of New-York.

NEW-YORK, Nov. 1st. 1808.

Dear Sir,

IT is a remark of one of the most distinguished Surgeons of the present day, Mr. John Bell, "That in the operation for Aneurism of the thigh, more perhaps have died than have survived it." In the manner of conducting the operation, there is also great difference of opinion, among the most celebrated Surgeons of Europe. These facts render it necessary and proper to record every case, in which this important operation has been performed ; the manner in which it has been conducted ; and the result of the case.

Influenced by these considerations, I enclose you the minutes of a case, which lately fell under my care, and which I am happy to add has terminated successfully.

John Spencer, a native of Germany, thirty years of age, came into the Alms-house, about the 20th of March, on account of a tumour of his right thigh, attended with pain and lameness, by which he was rendered incapable of pursuing his ordinary occupation, that of an oysterman.

Upon enquiring into the history of his complaint, it appeared that his disease came on spontaneously about the first of February last ; that he had sustained no previous injury to which it could be ascribed, unless the circumstance of a waggon having passed over his thigh about 14 years ago, could be supposed to have had any agency in giving origin to his disease. The first symptom which he discovered of his complaint was a small hard tumour about the middle of the thigh, which he perceived upon rising out of bed in the morning. In a few days it evidently increased in size, and the

pulsation became so considerable, that it was apparent to the bye-standers. It then gave him no pain, but about seven weeks from the time of its first appearance, the tumour became so large as to extend nearly to the knee, and almost as high as where the profunda leaves the femoral artery.

It then produced a sense of numbness throughout the whole limb, and such a degree of pain in the part as deprived him of his rest. The tumour also had acquired such magnitude that on the 29th of March, the pulsation was only to be perceived by the most attentive examination, and then only by grasping the tumour with both hands. The tumour also at that time assumed a somewhat purple colour, and in one part was much more elevated and elastic, and in some degree appeared as if the aneurismal sac would soon be ruptured. From its diffusing itself entirely around the thigh, there can be little doubts of a rupture of the coats of the Artery. His health had become much impaired, his countenance pale, his pulse small and weak, and his extremities, excepting the part affected, much diminished in size, and his whole body considerably emaciated.

The nature of the disease being ascertained, and the tumour sensibly and daily increasing, a consultation was called the succeeding day, at which all present concurred in opinion that the situation of the patient rendered it necessary, that the operation should be performed as soon as possible. Accordingly the following day, the 31st, was appointed for the operation. The patient's bowels were directed to be emptied by an injection, and afterwards an anodyne of 100 drops of laudanum to be given him an hour before the time of operating.

In conducting the operation, my friend Dr. Post, the Professor of Anatomy and Surgery, in Columbia College, gave me his assistance by compressing the artery as it passed under Poupart's ligament; for the small space between the tumour and the groin did not allow of the application of the Tourniquet. An incision was then made through the integuments about six inches in length, in the direction of the sartorius muscle, at its inner edge, beginning about two inches from the groin. The sheath enclosing the muscle was then divided, and the muscle pressed aside. I then slowly divided the cellular membrane (scarcely to be called fascia) covering and enclosing the vessels; and with my fingers readily detached the artery from the vein and anterior crural nerve, and passed the needle probe with a strong double liga-



ture beneath it. The ligatures were then tied, leaving about an inch between them, and the artery divided between the ligatures; but the division of it was made nearest the lower ligature, with a view to prevent the accident that has sometimes occurred of the ligature being thrown off by the force of the artery. On this account particular attention was given to the manner of securing the artery. Great care was also taken not to separate it from its connections, farther than was absolutely necessary to pass the probe beneath it and to apply the ligatures; lest any unnecessary separation should lessen the chance of union of the sides of the vessel before the ligatures might separate. In the hands of the English Surgeons it has, in several instances, occurred, especially in those cases where the artery was left undivided, that ulceration took place, and the ligature separated before the sides of the vessel were united, in which case the patient was destroyed by hemorrhage.

But by cutting the artery between the ligatures, as recommended by Mr. Abernethy and Mr. John Bell, it retracts as after amputation; and its connections being preserved, the union is as readily effected between the sides of the vessel in the one case as the other. It may be proper here to remark, that the artery was secured about an inch above the tumour, which was left to be absorbed, and that the upper ligature was made so high that there was probably little more than half an inch between it and the profunda. Another circumstance worthy of notice is, that the pulsations of the artery near the tumour were unusually feeble; whereas the other vessels beat with their usual force, as also did the femoral artery, where it passes Poupart's ligament.

The artery being secured, the sides of the wound were brought together and retained by strips of adhesive plaster, covered with lint and a light compress, and the whole supported by a flannel roller; the patient was then conveyed to his bed and his limb placed in an easy relaxed posture, with a pillow underneath his thigh to preserve it in that position. The next day a great increase of heat was perceived about the wound, but the lower part of the limb was much colder than natural, and not the least pulsation was perceivable in any of the arteries below the tumour. The limb was then bathed with spirits, and wrapped in warm dry flannels which were frequently renewed.

On the fifth day from the operation, the wound became somewhat offensive; the dressings were removed, when it

was found that an adhesion had taken place the whole extent of the wound, excepting the part immediately adjacent to the ligatures. The limb was also considerably warmer than on the second or third day after the operation, but had not yet acquired its natural temperature. Having cleansed the parts first with soap and water, and afterwards bathed them with spirits, the plasters and compress were renewed, and the roller applied as before. The wound was from that time dressed daily, and the whole limb washed with spirits; as early as the 9th day, the diminution of the tumour was apparent. On the 12th of April, i. e. the 13th since the operation, the ligatures came away; and on the 17th a very feeble pulsation was perceived in the posterior tibial artery, and the limb was restored to its natural temperature. He was then put upon the use of bark and a nutritious diet. In a short time his general health was so much improved, that he walked about the house without the least pain or inconvenience. The tumour continued to decrease rapidly, and the wound healed without the least impediment of any sort.

The tumour was still washed with spirits, and the roller applied as before, with the view to increase the tone of the parts, and to promote the absorption of the contents of the tumour.

The 22d of June, he called to see me with a request to be discharged from the Alms-House, and to return to his business. He had entirely recovered his strength, the circulation appeared perfectly restored in the limb, and the tumour so inconsiderable, that upon measuring the circumference of the thigh, at the part where the tumour had been most apparent, there was but one inch difference between it and the corresponding part of the other limb. He was accordingly discharged, with the direction to lay aside the bandage, and daily, for some time, to bathe the part affected with cold water.

I saw him a few days ago in perfect health.

*I am dear Sir, with esteem and respect, yours,*

DAVID HOSACK.

DR. EDWARD MILLER,

*One of the Editors of the Medical Repository, &c.*

*A CASE of CAROTID ANEURISM, and another of INGUINAL ANEURISM, successfully treated in Guy's Hospital, London; communicated to Dr. Miller, by Mr. JAMES VOSE, of New-York, now pursuing his medical and surgical studies in London.*

London, Sept. 10th, 1808.

DEAR SIR,

Happy in an opportunity to testify thus early the pleasure which I shall at all times receive, in being able to communicate facts interesting to the profession, and which establish precedents involving the lives of many of my fellow creatures; and persuaded of your lively concern in every effort that may, though remotely, tend to advance the happiness of mankind, and immediately to improve a most useful art; I take the liberty of transmitting to you an account of two important cases and operations which recently occurred in Guy's Hospital, and fell under my charge. Should you esteem it worthy of a place in your valuable Repository, I shall consider myself particularly fortunate in appearing before the profession through so respectable a medium, and acknowledge your liberality in conferring on my first efforts the flattering mark of your approbation.

You are no doubt aware that the operation of tying the Carotid for aneurism of that artery, was first performed by Mr. A. Cooper, and that this is his second attempt. The first proved unsuccessful from an untoward circumstance which could not be anticipated; it was however by no means so favourable a case as the present.

#### CASE I. CAROTID ANEURISM.

Humphry Humphries, aged 50, was received into Guy's Hospital, under Mr. Astley Cooper, on the 22d of June, 1808, with an aneurism of the left carotid artery. The history of his case is as follows. He has been for many years employed in carrying heavy burdens in the streets of London, as a porter, and enjoyed uninterrupted health, until six or seven months ago, when he first observed a small tumour about the size of a walnut, having a pulsatory motion, situated in the left side of the neck, under the angle of the jaw, and extending from thence downwards to the os hyoides. Five months ago the increase of the tumour became accompanied with great pain in the left side of the head, attended with a violent sensation of throbbing in the corresponding side of the



brain. The tumour affected his speech, which gradually became less distinct; he felt an irritation about the upper part of the larynx, which relieved itself by an occasional hoarse cough; but his breathing remained unoppressed by the progress of the disease, for the cough seemed entirely the effect of the pressure of the tumour on the larynx. His appetite became irregular; for three or four days he eat heartily, and then for many lost all disposition for food, and occasionally became sick when eating, but never to the degree of vomiting. He had frequently a sense of cold succeeded by heat in his left ear. There was a remarkable alteration of the left eye, which appeared diminished from contraction of the eye-lids. Three months ago, a blister was ordered by Dr. Hamilton, which relieved the pain in his head, and two months after he applied another with a similar effect for a few days. He continued at his labour until the day previous to his admission into the hospital.

On the day of operation (June 22d,) seven months from the origin of the disease, the dilatation of the carotid artery was just below the angle of the jaw, and appeared about the acute angle which is made by the great division of the common carotid; the tumour was as large as a pullet's egg, prominent in the middle, and its pulsation was remarkably strong. On emptying the sac, which was easily done by pressure, it sprung to its original size with one contraction of the heart; other proofs of the nature of the tumour were apparent.

Mr. Cooper purposing to tie the common carotid, below the aneurismal dilatation, began his incision from the base of the tumour, opposite the upper part of the thyroid cartilage, and carried it down on the inner edge of the mastoid muscle, to within an inch of the clavicle; he then proceeded by raising the margin of the muscle to expose the sheath which incloses the carotid artery, jugular vein and par vagum. During this dissection, two small arteries were divided, and required the ligature; (they were the only vessels which bled in the operation); the omo-hyoideus muscle could be seen crossing the sheath; the nervus descendens noni was also apparent going down to supply the muscles on the anterior part of the throat. Mr. C. now laid open the sheath, bringing the jugular vein first into view, which being distended at every expiration, appeared to spread itself more over the artery; the vein being drawn aside discovered the par vagum lying between it and the carotid, but a little to the outside of both: this nerve being large was easily avoided, but it was with more diffi-

culty several small twigs of nerves were separated from the artery. Mr. C. however proceeded with the greatest caution, and was enabled to succeed with the handle of his knife alone, a portion of the artery below being insulated to an extent sufficient to allow the passage of an instrument (a strong hook with a bulbous extremity) constructed for the purpose; a double ligature was attached to it, and the instrument withdrawn, leaving the ligatures under the vessel; and the ligatures being then separated, the lower one was tied firmly as near the extremity of the dissected portion of artery as possible. The pulsation in the tumour though much weakened was still distinct. Mr. Cooper now detached the artery with the handle of his knife for about an inch above the lower ligature, and secured the upper one as high as the connections of the vessel would admit; the end of each ligature was passed through the coats of that portion of artery between the ligatures, by means of a common curved needle, and tied in the manner recommended by Mr. Cline, jun. The artery was next divided in the middle, and the blood found already coagulated: [Pity this discovery could not have been thus accidentally made before the cruel experiments of Hewson and others.] Nothing now remained but to dress the patient, which was done by drawing the parts together, and securing them with adhesive straps; the ligatures being brought out at the ends of the wound, and a fold of lint laid over all retained by straps. While thus employed in dressing him, before his removal from the theatre, I took the opportunity of asking the patient, if he found his head affected by any unusual sensations; he answered, no; but that since the operation, he felt entirely relieved from the distressing pain and throbbing before described, and which had existed almost without intermission during the last five months. Upon further interrogation, he added, that attempting to stoop at any time of that period occasioned an insupportable fullness of his head, as if it would burst, succeeded by giddiness, loss of sight, and almost total insensibility. The patient was put to bed with his occiput raised high, which threw his head a little forward, and relaxed the mastoid muscles; in this position he felt quite comfortable. As no considerable constitutional irritation, nor any accident occurred to retard the patient's recovery, I am unwilling to trouble you with the tedious detail of uninteresting symptoms, as I felt it a duty to note them from day to day. I shall therefore conclude the account of this case with a few prominent circumstances in its progress. The

patient rose from bed the morning after the operation, and walked the length of his ward: this though at first contrary to express injunctions, he was afterwards permitted to do as often as his necessities required. He generally slept well, lived upon a low diet, and had his bowels particularly attended to; he was strictly charged to speak little. June 25th, the tumour felt as if all the blood contained in it was converted into a firm coagulum: patient had a troublesome cough with copious mucous secretion from the bronchia, &c. which he had much difficulty in discharging: a little currant jelly was given. June 30th, the wound was first dressed, and assumed a very healthy appearance; the tumour subsided gradually, the pulsation remaining perceptible but obscure. July 7th, the ligatures separated from the small arteries. July 9th, I pulled gently at the large ligatures without effect; a small poultice was applied to the wound, with the idea of facilitating the discharge of the ligatures, should they have cut through the vessel. July 14th, I removed the upper ligature without force. July 15th, the lower ligature was discharged; the pulsation in the tumour was then hardly to be distinguished, and the tumour was reduced to one fourth of its original size. August 10th, the pulsation of the tumour was no longer evident; and the swelling had subsided to a level with the neck, leaving the skin which covered it flaccid and corrugated from former distention; the wound had nearly healed, the pulsation of the temporal and facial arteries of the left side was distinct, but not so strong as on the right. The right carotid could be observed to beat with great force at the head of the sternum. September 1st, the wound of the neck has entirely healed, and the patient is restored to his usual health.

The manner in which the London street porters carry their loads may perhaps be considered one cause of aneurism of the Carotid artery.

## CASE II. INGUINAL ANEURISM.

— Coles, aged 30, was received into Guy's hospital under Mr. Cooper on the 22d June, 1808, with an Aneurism of the Inguinal artery of the right side. He gave the following history of his case. About six months before his admission into the hospital, he one evening walked five miles with a very heavy burden, which required unusual exertion, and exhausted him with fatigue. Two weeks after, feeling



slight pain in his right groin, he examined and found a hard swelling there, of the size of a hazel-nut, which he then felt throbbing under his finger. As the pain was inconsiderable, he disregarded the tumour until it had attained the size of a large marble about six weeks subsequent to his discovery of it, when he observed, upon drinking more than ordinary, that the throbbing and pain increased. He was still able to pursue his business of gardening, although he suffered much pain in the stooping posture, to which he was unfortunately subjected by the nature of his employment. At the end of the following six weeks, the swelling had increased to the size of a walnut, and the pulsation had become proportionally stronger. He then left off work from the violence of the pain and enlargement of the swelling, which very soon acquired the size of an egg, and in the last few weeks grew so rapidly, that the patient was induced to come to London, a distance of 120 miles, to undergo an operation. The tumour being exposed to injury, by his falling asleep on the top of the coach, changed colour three days after his arrival in town, and when he applied to Mr. Cooper, it appeared inflamed, with livid spots.

June 22d, the patient being brought into the theatre, and a more particular examination made, the tumour was found situated so high in the thigh, as to reach and raise Poupart's ligament; the artery had dilated to the size of a pint bowl, the skin covering it had become extremely thin, tense and irregular, and the more prominent parts on its surface of a mixed colour, purple and red in various shades. The tumour was hard, and its pulsation distinct and forcible, and the thigh and leg of a natural temperature, exhibiting no appearance of deviation from the healthy state. From this unfortunately advanced state of the disease, Mr. Cooper considered it his duty to lose no time in performing the only operation which afforded a prospect of saving the life of the patient; he accordingly performed it in the following manner, on the morning of the patient's admission. He began his incision about an inch and half from the superior spinous process of the ilium, and extended it obliquely inwards and downwards to the femoral ligament; he first cut through the integuments covering the external oblique muscle, and displayed its shining tendinous fibres; he then carefully divided these, and exposed the internal oblique, which, together with the inferior edge of the transversalis, he turned up with his fingers, insinuating them at the same time under the peritonæum. He was now able to feel the pulsation of the external iliac artery, covered howev-

er by the strong fascia from the reflected edge of Poupart's ligament, which Mr. Freer of Birmingham improperly considers as the peculiar sheath of the vessels, which had unusual firmness in his late case, owing to a remarkable rigidity of fibre. The division of this fascia, and the separation of the artery from its accompanying vein, in a situation where all reliance devolves upon the sense of touch, is certainly the most difficult and hazardous stage of the operation. Mr. C. found himself compelled to divide a few of the lower fibres of the internal oblique and transversalis muscles, before he was able to accomplish it. Having completely exposed the artery, detached from the surrounding parts, he passed a double ligature under it by means of the aneurismal needle, and separating the ligatures, tied the lower one as far down the vessel as he could draw it. The pulsation in the tumour at once ceased. The upper ligature being tied, left a space of about three quarters of an inch between the two. Mr. Cline's method being employed here also to secure the upper ligature, the artery was divided in the middle, and appeared quite sound; the external wound was now closed by two stitches, supported by intervening slips of adhesive plaster, and a fold of lint laid lightly over all, with the ends of a Tbandage pinned loosely to retain it. Towards the conclusion of the operation, the temperature of the limb altered sensibly, but very soon regained a degree of warmth, little below natural. The patient was put to bed with a pillow between his knees supporting the aneurismal thigh, a cotton stocking was put upon the leg, and over this a doubling of thick flannel. The warmth of the affected thigh I could not at this time perceive to differ from that of the other; the pulse was a little hurried from the agitation necessarily attendant on the operation, &c. The patient, upon being questioned, said he was not sensible of greater coldness or torpor in the aneurismal limb than in the healthy one: in the evening the limb increased in heat, and the next day the pulse was about 85, and the foot and leg perspiring. During the remainder of the cure, I could not discover any difference in the heat of the extremities. A few days after the operation, the patient complained of soreness of the abdomen immediately above the wound, which however subsided on procuring free evacuations from his bowels. He suffered much from constitutional irritation, and on the 26th of June, was affected with delirium, which also receded after copious evacuations. The tumour now appeared evidently diminished, and became much softer; the discharge from the

wound was considerable, an outlet being made for the matter; to the confinement of which the great irritation and delirium were in part attributed. June 30th, the integuments covering the tumour having gradually wasted, ulcerated, and discharged a quantity of dark grumous blood, and the remainder being pressed from the sac, a sponge wet with cold vinegar and water was laid over what now appeared a flaccid dark coloured bag: the integuments soon sloughed away entirely, and left a deep cavity, which was dressed with dry lint and poultice, and afforded healthy granulations. July 8th, the upper ligature came away without any force having ever been used. July 9th, the lower ligature came away; the patient continued slowly to recover, being much reduced by heat, irritation, and the profuse discharge from the wound and sac. His strength was supported by nourishing diet, porter, wine, &c. until he was in a condition to leave the hospital, when Mr. Cooper removed him into pure air a few miles from town. His thigh remains slightly benumbed, feeling as he expresses it, as if asleep. Mr. Cooper thinks this cutaneous insensibility may be accounted for by supposing branches of the anterior crural nerve to have been involved in the sloughing sac. Sept. 9th, the patient walks about with the aid of a walking stick, and enjoys perfect health.

You will observe by the description of Mr. Cooper's method of performing this operation, that it differs essentially from that adopted by Mr. Abernethy, Mr. Freer, and Mr. Tomlinson; the obliquity of Mr. C.'s incision through the integuments and external oblique muscle corresponding with the inclination of the peritonæum at this place, gives him a facility in raising it, which certainly must render his operation both less tedious and less hazardous in its consequences; and the use of two ligatures, with the division of the artery between them, is, I believe, acknowledged by the best surgeons of the present day, as a material and important advantage.

May I take the liberty of requesting you to present my grateful thanks to Dr. Mitchill for his kind application to the Secretary of State for a passport, with which I might be enabled to pursue my professional studies on the continent. I am at present pupil and dresser to Mr. A. Cooper.

With sincere respect,

Dear Sir, your obedient servant,

JAMES VOSE.



OBSERVATIONS on the effects of HEMORRHAGE and some other REMEDIES in the cure of GONORRHŒA; communicated to Dr. MILLER by Dr. SAMUEL AKERLY, one of the Physicians of the Dispensary, in the city of New-York.

DEAR SIR,

Our late conversation on the subject of Gonorrhœa has induced me to offer you some further observations on the cure of this disease, in addition to the following case which I then promised you. It occurred during my residence at the New-York Hospital, as House Physician.

This case of Philip Lee, affected with Gonorrhœa, was a most distressing one, and a case in which a remarkably speedy cure was effected. Lee was once in the Hospital as a surgical patient for nearly a year with syphilis. He had been discharged about five months, and returned on the 28th July, 1806, with a recent gonorrhœa. It being contrary to the rules of the hospital to receive a patient a second time with a venereal complaint, he would have been rejected had not his case been desperate. He applied to be received on the afternoon of the fourth day after he observed the symptoms of clap.—His penis was much swelled, and for the last twelve hours he had passed no urine, but in straining he had burst a blood-vessel which had bled all day from the urethra.

A strong solution of alum was given as an injection, to stop the hemorrhage. The following diuretic mixture was also prescribed.

*R Sp. Nitr. Dulcis ℥ij*

*Aq. puræ ℥vj*

*Carb. Sod. ℥ii m.*

*Capiat æger ℥ss omni horâ, vel sæpius pro re natâ.*

With this, the patient passed a very restless night without sleep and with a continuance of the hemorrhage; not having used the injection till I was awakened past midnight and procured him a syringe.

In the course of the next day, by frequent injection he stopped the hemorrhage, but was very uneasy from the distention of the bladder, still passing no urine. I therefore ordered him a common clyster which evacuated the rectum, and gave him considerable relief. I postponed introducing the catheter as long as possible (fearing at that time, though perhaps my fears were unnecessary,) lest the matter of gonorr-

hœa should be carried into the bladder. At night however of the second day, I drew off upwards of a quart of bloody urine, which afforded him instant relief. On the third day he passed urine freely, which gradually lost its bloody colour. He continued his medicines till the 31st, when his urine passed very free and clear, and without pain, the swelling of the penis being likewise abated. The injection of alum (sulphate of alumine) was continued till the 4th of August, when having recovered from his alarm, and having no pain uneasiness or running, he went away well, eight days from the time he was received.

In this instance, the local bleeding was of great service, and might have cured the disease itself, after a passage was found for the urine. This case may be placed with those related by Dr. Pascalis in the *Med. Repos.* vol. 8. p. 35. From the repeated recurrence of similar cases, terminating in a cure, I am induced to believe that my patient would have recovered from the gonorrhœa without the aid of the prescribed medicines; but my situation made some prescription necessary in order to avoid unpleasant imputations.

From the frequency of this form of venereal infection, and the disagreeable symptoms often remaining after the present mode of treatment, there is no disease which produces so much anxiety of mind in the patient, and consequent trouble to the physician. The most unhappy and most common terminations are a stricture, or long continued gleet. The treatment of gonorrhœa is so much neglected, that druggists' apprentices, and students of medicine, have the most patients, and physicians are seldom or ever consulted except (as in vulgar though expressive language) for the *after-clap*. The after-clap, if it should be stricture, is worse than the primary disease. Nothing is more common with practitioners than to induce one disease to cure another, as in a salivation and the application of blisters, which are easily cured; but the stricture is worse to cure than the gonorrhœa itself.

I am not led to the same inferences as Dr. Pascalis in considering the case related by himself, and the preceding one. He speaks of the venereal disease, including syphilis and gonorrhœa. I speak of gonorrhœa independent of syphilis, as a disease *sui generis*, having its particular symptoms, and method of cure; a venereal complaint contracted in coitu, in the same way as syphilis, but a disease as different in itself as typhus is from the plague. I do not mention this for the sake of controversy. I am aware that there is good authority

for believing that some cases of gonorrhœa will not yield without the aid of mercury, which fact is relied on for their identity; but such facts are not constant nor frequent; on the contrary, many cases have occurred to myself and Dr. Beekman (my former colleague at the Hospital and present colleague in the Dispensary), in which the syphilitic symptoms were entirely subdued and an accompanying gonorrhœa left, after a complete salivation. Many patients also, salivated by desire for the clap, have recovered from the salivation with the disease as virulent as ever. With the exhibition of mercury, I have used the fashionable injections, the sulphate of zinc, the acetate of lead, &c. and thus found to my conviction that gonorrhœa is not so easily cured as may be wished.

When the preceding case occurred to me, I wrote down the facts, and turned to those related in the *Med. Rep.* but laid by the papers for future consideration. I am glad to accord so well with you in opinion, as to think that we must look for the cure of gonorrhœa in learning the best treatment of topical inflammation. The case thus before you illustrates this opinion. It need hardly be observed that the membranous surface of the urethra is the seat of gonorrhœa. When the poison of gonorrhœa is applied to this surface, inflammation is excited and a morbid increased secretion takes place, without a destruction of the part affected. When this happens "The cure consists (as Dr. Adams observes\*) in restoring the secretion to its natural quality and quantity." The diseases produced by the morbid poisons of Variola, Vaccina, Rubeola, &c. will cease spontaneously and within a given time. We have also sufficient proofs that virulent gonorrhœa will cease spontaneously; but nature seems to have set no bounds to the termination of this disease; hence a sudden check may be put to its progress without injury.—This check must be looked for in the treatment of inflammation.

Of the methods of subduing inflammation we shall hereafter speak. The various injections that are used in the cure of this disease are generally given with the idea of a specific cure. That few or none of them act in this way, may be seen by the different qualities of the substances employed, all of which at times succeed. The metallic salts when used by injection are intended to correct the disease by producing a

\* *Adams on morbid poisons. London, 1807.*



greater irritation ; but where the inflammation is high they are dangerous. These injections do, to be sure, cure the disease in many instances, but in many more they leave the part in a state of chronic inflammation with the morbid secretion altered in quality but not in quantity. The disease then continues in the form of gleet, and is no longer a morbid poison though a morbid secretion. Thus indeed the patient is relieved from the most painful symptoms of the disease, but not from the trouble, inconvenience, and solicitude, which continue till the discharge ceases ; and not then if the thickening of the membrane of the urethra has produced stricture.

The practice of curing gonorrhœa by alkalies, was introduced into the New-York Hospital, by Dr. Mitchill. It has in a number of cases effected a cure, and will again. I cannot say that the cure will be speedy. It was begun with the idea of correcting the morbid poison by an alkali, supposing that it would be an antidote to the poison which might thus become neutralized.\*

If this be the effect on the poison of gonorrhœa, the solution of sulphate of soda, as used by Dr. Andrew Ferguson,† must operate in a like manner by the chemical attraction being greater between the soda and poison, than between the sulphuric acid and soda. That this is the case however I am not satisfied.‡ But it is certainly the neatest and cleanest way, to cure chancres with alkaline dressings, while the system is undergoing the mercurial action. With the topical use of alkalies, we shall never have buboes from chancres, as in using lunar caustic.

The common language of physicians in the cure of gonorrhœa is that of timidity, anticipating some violence to the constitution by a sudden check to the disease ; whereas, if we attempt improvement by following the method of nature as in the case related, it may be cut short at any period by the proper treatment. This method however may be difficult to pursue, as we have not the means exactly to imitate nature.

The means then pointed out for the more speedy termination of this disease, are, bleeding and cupping in the neighbourhood of the parts affected, leeches applied to the penis, blisters, and cold in its various modes of use.

\* Med. Repos. vol. 3, p. 302. † Med. Museum, vol. 1. p. 462.

‡ I am now proceeding in an experimental enquiry, whether alkalies, when mixed with vaccine infection, will not neutralize its virus.

These hints are suggested by the case above related, and offered to your consideration. The application of leeches and cold, would perhaps be the most adviseable. Even very cold injections might be effectual ; but on the further consideration of these points, I defer more particular enquiry till some practical experience is obtained. On the external application of cold water, however, I recollect the case of Mr. A——, who was materially and almost exclusively benefited in a Gonorrhœa by the local affusion of cold water several times a day, as he feared the use of injections.

I defer entering now, as I intended, into the subject of inflammation, it being so important as to require more minute attention than could be bestowed upon it in a short communication.

*Accept assurances of my respect and esteem.*

SAMUEL AKERLY.

DR. EDWARD MILLER.

*Remarks on the MANNERS of the INDIANS, living high up the Missouri : Translated from a manuscript of JEAN BAPTISTE TRUDEAU, put into the possession of Dr. Mitchill, by Mr. NICHOLAS BOILVIN.*

(Concluded from p. 56.)

Although I have said that the savages live without law or subordination, I do not intend to be understood as affirming that they have no manner of regulations, no police nor any established customs among them, for the preservation of order in their nation. All I mean to represent, is, that they have no despot, or absolute government. Every tribe has its chiefs and respectables. These, added to the old men, compose the council, in which their public measures are considered and determined. After the question is carried in the affirmative or negative, an orator proclaims the result throughout the village, and every one submits to the decision. When the inhabitants of an entire village march on an expedition to hunt bisons, the council appoints a certain number of the bravest young men as soldiers and guards. The chiefs and old men regulate the distance of the encampments on the route, define the limits within which hunting shall be performed from day to day, and make known to all the hunters that they must not transgress the prescribed bounds. If after these arrangements any one, through ambition or en-

terprise pushes too far ahead, or oversteps the limits, and is discovered by the soldiers, they beat him with sticks and clubs, cut to pieces his clothes, break his weapons, tear down his house, and kill his horses and dogs. And this punishment is inflicted upon the greatest chief or bravest warrior among them. These rules of hunting are to prevent those who have the best legs or the fleetest horses from outstripping the rest, and frightening away the game, except the small number that few might want ; while the rest of the company would be left to starve in the rear. Whereas by travelling slowly and keeping all together, they create no distant alarm in the woods, but kill deer and bison enough for all their party ; each having his share of hunting and of eating.

I have also said that there are no distinctions among them. By this I mean the distinctions which art and chance have established among our species ; such as birth, titles, honours, and riches. The savages know how to estimate a man's valour and other warlike qualities and his liberality to strangers, whenever they have travelled through their settlements ; a man who, in the national councils and every where else, has shewn himself to be attached to the public interest, and who has given proofs of sound judgment, moderation and uprightness ; such a man I say, though he is neither a chief by descent nor by election, is nevertheless admitted to all the meetings and festivals of the village. His words are heard and his opinions regarded, oftentimes more than those of men who can count a long line of ancestors that have been chiefs, but are inferior to him in personal qualities. But notwithstanding all this, he possesses no authority or privilege over the rest, and so far is he from being vain or proud about the matter, that his habitation is always filled with persons who smoke, drink and eat with him, as long as they find the wherewithal.

The Indians have few diseases ; and have a happy exemption from many which afflict the white men. Palsy, gout, asthma, gravel, stone, and some other distempers are very rare among them. They are often long lived ; though many shorten their days by their own intemperance. Suicide by hanging and stabbing themselves is frequent enough, especially among the Sioux.

They have a singular kind of polygamy among them. If a man takes a woman to wife who has several younger sisters, it is common for him to marry them all in succession, as



fast as they become old enough. I have seen several who had as many as six wives, and all these sisters.

A young Indian seldom however lives long with his first wife. This is so much the case, that by the time he is thirty years old, he has perhaps cohabited with ten different women, and abandoned them. After that age, they usually grow more permanent in their attachments. The men generally are allowed the liberty of divorcing their wives when they please, and of marrying again. The women have not the freedom of doing this until after they have been deserted by their first husband. Then they have full range and power to act as they please. Accordingly these women take new husbands as often as their curiosity or convenience prompt them. After a woman becomes more advanced in life, she attaches herself to some one man, and he is commonly that one by whom she has had the greatest number of children. If a man quits a woman by whom he has had a number of children, he only takes away his arms with him; but the horses and other things remain with the wife.

When a young woman has lost her husband by war or otherwise, and there are surviving brothers of the husband, one of them marries the widow, or rather has the right to do so. It must be observed, however, that this takes place only among the savages who value themselves most highly in keeping up an observance of their ancient customs. The Indians to whom we relate the circumstances of our marriages, are wholly at a loss to comprehend how white men, possessing so much understanding and knowledge, should be so blind as not to see that marriage is a source of pain and torment to them; they look upon it as a monstrous thing for a man and woman to be so indissolubly bound together as never to get loose. In short, talk to them as we please, they remain unalterably persuaded that white men are the slaves of women. There are few indian females who are constant and faithful to their husbands, but are much given to intrigue and incontinence. This is however not equally the case with all the nations; for among some of them, the women are more reserved and chaste.

The Panis, Mandanes, Ricaras and Bigbellies, are somewhat more than ordinarily indifferent as to their women.—No such sentiment as jealousy ever enters their breasts. They give this reason for it, that when a man dies he cannot carry women with him to the regions of the dead; and that they who quarrel, fight, and kill each other about the

possession of a woman, are fools or mad-men. They are so firmly convinced of this, that many of them take a pride in treating some of the considerable men among them with their youngest and handsomest women. So true is this, that husbands, fathers and brothers, are importunate with the whitemen who visit them, to make free with their wives, daughters and sisters, particularly those who are most youthful and pretty; and in consideration thereof accept a few baubles or toys. Indeed both the girls and married women are so loose in their conduct, that they seem to be a sort of common stock; and are so easy and accessible that there are few among them whose favours cannot be bought with a little vermilion or blue ribbon. This kind of commerce is carried on to a great length by our young Canadian traders. The consequence of these libertine manners is the venereal disease. This is very frequent among them; but the Indians cure it by decoctions of certain roots. I have seen some that were rotten with it, cured in six months.

When menstruation happens, the woman goes out of the hut, makes a fire by herself, and cooks her food alone. No person takes any of her fire on any account, not even to light a pipe with, for fear of bringing some misfortune upon himself. Their *War-mats* and *Physic-bags* are at these times carried out of the house and suspended from the end of a pole in the open air, until the operation is over. While the women are in this situation they are very careful not to enter any cabin where there is a sick or wounded person; lest the patient's recovery should be retarded. When a woman finds herself with child, she receives the embraces of her husband no longer, but abstains from them entirely until thirty days after her delivery. There are, as may be supposed, exceptions to this: but such women are considered as behaving foolishly, and endangering both the lives of mother and child. When a pregnant woman finds her labour approaching, she withdraws to the hut built for the lying-in business, in all places where they have a stationary settlement: some old women follow her and give her all the help they can. But parturition is effected without the aid of a midwife; for they bring forth their young ones with a facility of which our civilized ladies have little idea. The term of their confinement seldom lasts more than two days. And if the party should find it necessary to march, the woman's lying-in never detains them half a day. For the mother, as soon as the child is born and swaddled, travels with the assistance of

some of her friends, the whole day's journey to the place of encampment. And the next day after the infant is brought into the world, she plunges and washes it in water, both winter and summer. She then wraps it in a piece of Bison-skin and ties its back to a plank about three feet long. The women nurse their children themselves, and as they never wean them, they suck as long as they please.

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*Observations on BOTS in Horses ; communicated by Dr. AMOS  
HAMLIN, of Durham, Greene County, (N. Y.) to Dr.  
MITCHILL.*

A GREEABLY to the request you made me, from Albany, (some years since) I send you the result of some of my physical inquiries and observations. The communication that I now make, is the result of the experiments and observations, that I have made on the bots, a worm that infests the bowels of the Horse, and often proves fatal to that useful animal. In the month of May, 1800, one of my horses was troubled with the bots, and voided a great number of them. I took several of them as soon as they were discharged, and enclosed them in dry horse-dung, and put them into a bottle, and stopped it tight, and had the satisfaction to see them transformed into a chrysalis in the course of three days ; in which state they continued about five weeks, and then were hatched, into (what is called in the country) a horse-bee or nitter. I was not surprised to see them produce that insect ; for the observations that I had made on the appearance of that fly, led me strongly to suspect, that that would be the result. The next thing to be ascertained was the product of the nit, which the aforesaid fly deposited on the hairs of the horse. I cut off a bunch of hair from my horse, which had a great number of nits attached to it, and inclosed it in a very transparent glass, and found in twelve days, that the nits had produced an insect, almost imperceptible to the naked eye ; but with a magnifying glass I found them exactly to resemble the bot. The next difficulty that presented, was to ascertain, how the bot insinuated itself into the bowels of the horse. I found the horse frequently to bite and rub the part in the vicinity of those nits, which led me to believe that he swallowed some of them with his food, and they produced the bot after being in the stomach ; but the observations that I have



since made, lead me strongly to suspect that I was mistaken in that particular; for on separating the hair in the vicinity of those nits, and viewing the skin minutely, I could discover these insects with the naked eye; and on taking a look through a magnifier, could see a great number of them; and they appeared to be insinuating themselves into the texture of the horse, through the pores of the skin. I must leave it to more able naturalists to determine the reasonableness of the aboveconjecture; but it is a fact that some had so far penetrated into the skin as to be almost out of sight. I have taken unwearied pains to ascertain the length of time the nit remains on the hair of the horse, before it produces the bot, and find that it is regulated entirely by the state of the atmosphere; and that in very warm weather, they do not remain in that state more than eight days at most, but in cool weather they continue much longer. Would not scraping the nits off every two or three days, prevent the horse from having the bots? Wetting the nits in common rum, or spirits of terebinthina diluted, will prevent them from hatching. I have tried a great number of medicines, in order to dislodge the bots from the bowels of the horse, and have been disappointed in almost every case; but have been sometimes successful, when I have given the *Rad. Irid. Palustris*. I have known a horse to discharge a great number, after taking plentifully of that root in a fresh state.

To endeavour to investigate the resources of nature is a pleasing research, and I know of no better way to become acquainted with the perfections of Deity, than through the works of Nature.

The horse is a very useful animal, and every discovery that has a tendency to prolong his life, is of public utility. I have but few leisure hours to spare for physical experiments; but my life is devoted to philosophical pursuits. I keep a journal of all remarkable occurrences that take place in my practice, and the satisfaction I have in perusing the same, fully compensates me for my trouble.

I have begun a course of experiments and observations on the worms that infest the human body; but have made but little progress in that research; yet I am not without hopes of being able, hereafter, to throw some light on that intricate subject. Sir, if you think, the observations I have made on the bot, will be of any service to the public, you are at liberty to make such use of them as you shall think proper.

With the utmost respect for your private and public character, and my best wishes for your welfare, believe me to be your devoted and humble servant.

AMOS HAMLIN.

HON. SAMUEL L. MITCHILL.

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CASE of RUPTURED UTERUS: *communicated by Dr. CHATARD, of Baltimore, to Dr. MILLER.*

THE case which I now communicate to you, would have been one of the most interesting, and would, perhaps, have contained details very seldom met with in the annals of medicine, if prejudice, which in every nation and every age has too often retarded the progress of our art, had not opposed to me its ridiculous obstacles. Nevertheless, I will candidly make known to you what I have observed and effected. I think if the self-love of a physician is agreeably flattered when he affords to his fellow practitioners occasions to applaud his success; this same self-love should not be mortified, when he acquaints them with cases of his ill success, which may expose him to criticism, but must necessarily render them more watchful in those difficult cases, in which all human skill and dexterity are often unequal to the obstacles to be overcome.

The negro woman who is the subject of this case, was so much below the common size, that she would have been taken for a child, instead of an adult. However, she must have been advanced in age; for, about twelve years ago, she bore a dead child, which undoubtedly had not arrived at full time, and of which she was delivered alone, without any assistance whatever. When I was called to visit her this last time, she was attended by a midwife of this city, a woman of much experience acquired by a practice of forty years. I was informed by her, that she had been with the patient about fifteen hours; that the membranes had been broken before her arrival; that the head of the child was in the position in which she had first found it; that the belly of the woman was harder, more elevated and more painful than she had ever observed it in any other parturient woman; that its anterior part however, from the pubes to the navel, was remarkably soft, though painful; that each of the labia puden-

di was swelled to the size of the fist ; that her pains were ineffectual though frequent ; and finally, that from the commencement, her pulse had been very weak. A stay of two hours, and an examination of her condition, too exactly confirmed the account of the midwife. The head of the child was well situated at the brim of the pelvis, but was evidently stopped there by a disproportion between it and the antero-posterior diameter, although every thing else was right. I endeavoured, as the midwife had already done, to push back the head in order to discover the degree of force by which it was wedged in between the pubes and sacrum. My efforts having been as unsuccessful as hers, I resolved to try the forceps : they were applied with all possible tenderness and attention. Again unsuccessful, I agreed with the midwife to leave the case to nature till day light. This delay, far from lessening my uneasiness, only doubled my fears. However, things went on thus till noon, when thinking that I perceived some favourable change in the progress of the head, which I attributed to emollient fomentations and injections, I again applied the forceps : but failing again, an idea occurred to me of employing one of its blades as a lever, and pushing the head towards the right iliac fossa, by fixing it on the occiput turned to the left. This manœuvre perfectly succeeded. But upon examining the womb again, how great was my astonishment at finding a foot instead of the head ! I confess that not yet suspecting a rupture of the uterus, I at first thought that there were two children, and that the lower extremity of one was placed near the head of the other. Having laid hold of this foot, I attempted the delivery in this manner ; but the other extremity opposing the passage of the body, I brought it down, taking care to secure the first by means of a loop. Every thing succeeded, until the head came down to the place where it had before been stopped ; and although its position appeared to be very favourable, I could not bring it through. Not doubting the death of the child, for its umbilical cord seemed to be without circulation and almost putrefied, I ventured to pull a little more at the body, before applying the forceps, as I intended, and as Baudelocque recommends in such cases. But by a degree of force infinitely less than what I have frequently employed in common cases, the head was separated from the body. Much distressed at this sad accident, I introduced my hand into the womb to extract the head by putting my fore-finger into the mouth, when most unfortunately the low-



er jaw came away with as much facility, as the head from the body. I then suspected that the child must have been dead a considerable time from its parts having so little cohesion ; and it recurred to my memory, that when questioning the patient, I had been informed by her, that four days before, she had been seized with a violent bilious vomiting, during which her belly had acquired its then present form ; that it had ever since continued to be painful ; and lastly, that she had not experienced the same sensations from the child, as before. However, not suspecting a rupture of the uterus, I sent for a crotchet, that I might be able to extract the head by diminishing its bulk as much as necessary. But when I put my hand up into the vagina, I found that the intestines had fallen down into it and displaced the head. The womb, if I may be allowed the expression, had disappeared, and my hand passed from the vagina into the cavity of the belly, with no other resistance than what was occasioned by the different viscera contained in it. The head was found near the liver. I then sent for Doctor Davidge to consult with him on the case. We agreed in the opinion that the patient had but a few hours to live ; and that the Cæsarean operation would but hasten her death, which happened soon after. Her master Mr. W. very obligingly gave us permission to open the body, but her husband, and perhaps her relations, opposed our design, and thus prevented me from affording you more interesting details.

### REFLECTIONS.

Was the womb ruptured at the time of vomiting which happened four days before I was called in ? Or at the moment in which I succeeded in unfixing the head ? And if it had been ruptured during the space of four days, how could the woman survive the accident, and the position of the child remain the same ? I answer these three questions in the following manner. *Firstly.* It is more than probable that the womb was ruptured at the epoch of vomiting ; because, when the child's head was disengaged, the woman did not say that she felt any pain, which is contrary to what happens at the instant in which the womb gives way ; besides there was no discharge either of blood or water immediately afterwards. *Secondly.* Lamotte and Hildanus say positively that they have seen women survive a rupture of the uterus four days ; and according to Doctor Crantz who has writ-

ten well on this subject, observers mention many such cases. Indeed, if death is not the necessary consequence of division of the uterus, as is proved by the frequent success of the Cæsarean operation, and more fully by the suppuration and gangrene of this viscus, likewise by its partial laceration and almost total extirpation; why should the patient die before any spasm of other viscera occasioned by the immediate pressure of the different parts of the child, existed, or before the accident was complicated with effusions of blood into the abdominal cavity, or intestinal herniæ strangulated through the rupture?

If I conjecture rightly, the womb was ruptured at its anterior and inferior part, near its orifice, in a longitudinal direction and pretty extensively; for, as I have said above, although the belly was very tense and painful, there was nevertheless a considerable degree of softness felt at its anterior part from the pubes to the navel: and I presume, that it was to the presence of the floating intestines which had slid into this part, that we should attribute this sensation or rather symptom, which I have never seen described, and which, added to those mentioned by Doctor Crantz as announcing a proximate rupture of the uterus, may, perhaps, with some degree of reason be regarded as a pathognomonic symptom of this rupture. The midwife abovementioned informed me that she had observed this symptom joined with an elevated and hard belly but twice, during her long practice. Both the women in whom she observed it, died: and their children were extracted by crotchets, by two physicians of this city. One of those physicians, who has been dead some years, seemed to have recognised a rupture of the uterus, but contented himself by saying it was *decayed*. The other, who is at once very skillful and candid, extracted the child by the crotchet, but did not appear to have suspected a rupture; nor should I have discovered it, if I had at first succeeded with the forceps. It is to be regretted that this symptom, (undoubtedly aided by others which but too clearly indicated a tendency to rupture) had not led those practitioners, as well as myself, to perform the Cæsarean operation. We might possibly have saved our wretched patients; and in each case, without adding much to their sufferings, we might have positively satisfied ourselves as to the solidity of this symptom which in other cases might have been of the greatest utility, and have added to the perfection of the art.

*Thirdly.* To solve the difficulty relative to the situation of the child, which must have been the same during the four days succeeding the rupture; I will answer, that the child's head being strongly wedged down between the pubes and sacrum, must, notwithstanding the rupture of the womb, have remained in the same position, until it was disengaged; and then, the fundus uteri continuing to contract, must necessarily have turned the child in such a manner as to substitute a foot in place of the head.

The power of contracting which the womb still possesses after its rupture, when the child has not been expelled, is admitted by Baudelocque, whose authority in affairs of midwifery is as good as any man's: and I will take this opportunity to declare, that for justness and minuteness of description as well as sound reasoning, I know no book more unexceptionable than Baudelocque's work on the art of midwifery.

May you, my dear friend, experience as much pleasure in reading this small memoir as I do in communicating it to you, and renewing to you the assurance of my affectionate sentiments.

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*A Topographical Description of the County of SARATOGA, (N. Y.) with an account of the origin and treatment of some of its endemic diseases: communicated by Dr. JOHN STEARNS, of Waterford, to the Medical Society of the State of New-York; and presented to the Editors by Dr. ROMAYNE, President of said Society.*

THE county of Saratoga is bounded on the south by the Mohawk river, which divides it from the county of Albany; on the east and north by the counties of Washington and Rensselaer, from which it is separated by the Hudson river; on the west by the county of Montgomery. It is about forty five miles long, and thirty wide, containing 32,000 inhabitants. The land which extends along the Hudson is level, consisting chiefly of clay, excepting that part of it which lies in Stillwater, which is generally composed of slate. As it extends towards the interior, it is found to consist of sand, loam, and clay, alternating with each other, and is generally fertile. The north western part is mountainous, and some part of it unsuceptible of complete cultivation. Near the



centre of the county are situated the celebrated Ballston and Saratoga medicinal waters. As the analysis of these waters is in the possession of the public, and as a minute detail of their various operations and virtues would exceed the limits prescribed for this report, I shall therefore defer for the present, their further consideration. Within a few miles of these springs, to the eastward, are situated three large lakes, one of which is about nine miles long and three wide; it is called Saratoga lake: the other two lie south and west. A considerable extent of marshy land lies contiguous to Ballston lake, from which it is overflowed in high water. The Kaydeross creek, which is a stream of considerable size, runs from west to east nearly through the middle of the county, and empties into the Hudson at Saratoga. On this creek are situated a number of mills, the dams of which so obstructed the water as to overflow the adjacent ground for a considerable distance. The luxuriant vegetation on each side of this creek, in the warm months, of course became subject to the process of putrefaction. From the deleterious gas which this gave out, were supposed to originate fevers of a peculiar malignity. It was not uncommon to see families, consisting of ten persons, lose three or four of their members in the course of one warm season. This alarming mortality excited the attention of all classes of people: they found that the origin of these fevers could be traced to the erection of the mill-dams, and that their deadly influence was every year increasing with an alarming rapidity, so that at some part of the season there were scarcely well persons sufficient to nurse the sick. The menaces of the people finally induced the owners to open their dams and draw off the water during the sickly months.\* The consequence was a restoration of health to the inhabitants. The logs with which the creek was generally filled have since been removed, and the land on each side in a great measure cleared up. This source of fever therefore being diminished, the owners were again permitted to resume their business. Although intermitting and remitting fevers do still prevail; they are not marked with their former malignity. Living remote from the places where these fevers prevailed, I have had no opportunity to observe their characteristic symptoms, nor the mode of treatment that was pursued.

\* I have been lately informed that the owners of the mills were indicted and consequently obliged to open their dams.

I shall now proceed to give a concise history of some fevers that have occurred under my particular observation.

The village of Waterford is situated at the confluence of the Hudson and Mohawk rivers, on a flat which terminates about 150 rods west of the Hudson, in a rise of ground that runs parallel with that river to the north. The soil near the river is a black loam which is changed for clay at the distance of about forty rods, and about 200 rods further west is converted to light sandy loam, which extends several miles in that direction. A slate rock underlays the eastern part of the village. The water from this part is universally bad, in which soap is insoluble. The village is regularly laid out into streets and alleys which intersect each other at right angles. It consists of about 1000 inhabitants and has generally been remarkable for its salubrity.\* In the summer of 1805, a small quantity of water had been suffered to collect and stagnate in the centre of the village; an accumulation of filth of various kinds had prevented it from being drained as usual from the ground. Towards the latter part of summer it assumed a green aspect and emitted effluvia that were extremely offensive. As the Fall months advanced, this green colour appeared to be gradually converted to a reddish hue: this was its situation when it was by the severe frosts converted to ice. Early in the month of September, 1805, Amos Porter was occupied for several days near the verge of this stagnant water. On the tenth, he was assailed with violent febrile symptoms, his face bloated, eyes swelled, and their vessels extremely turgid with blood, accompanied with a yellow aspect; pulse at 100, tense, and full; complained of a nausea, and extreme pain in his head and back; with a universal prostration of strength. His symptoms continued with very little variation till the next day, when a subsultus tendinum commenced and increased with violent rapidity, till his body was universally agitated with perpetual convulsions. He continued in this situation twenty four hours, when he expired on the third day from the attack. Six persons occupied stores within two rods of this stagnant water, on the north. The south wind, of course, wafted the effluvia through those buildings; one of these occupants was soon after seized with symptoms similar to Porter's, excepting that they were less violent, and the disorder more

\* Not one adult has died in this village since the 20th of Feb. 1807, and but three infants.

lingering; he died on the ninth day from the attack. The other persons were not so much confined to the stores. They enjoyed a more salubrious atmosphere, and of course were not so much affected by this deleterious gas: they were however all sick, but recovered.

There was scarcely a person who was in the habit of frequenting the vicinity of this pond, but was in some degree affected by its exhalations. About twenty persons were violently seized with fevers similar to the above, all of which could be traced to this source. All recovered but the two first cited cases.

My treatment of this fever was;

1st. *Venesection*. This I generally repeated from two to four or five times, according to the inflammatory action of the system. In one case where the pulse was too frequent to be numbered, it rendered it slower and much more distinct.

2nd. *Emetics*. These I seldom exhibited unless they were indicated by a nausea or vomiting.

3d. *Cathartics*. These I administered very liberally, generally consisting of calomel, or calomel combined with jalap; or with tartarised antimony. They were administered every day at first, and every other day afterwards, or oftener if evacuations were indicated.

4th. *Epispastics*. These were generally applied after the second bleeding, and sooner if a stupor, delirium, or subsultus tendinum was threatened; or when the vomiting proved obstinate.

5th. *Alkalies*. Soda was generally preferred where the stomach would receive it; otherwise the aqua ammoniæ acetatæ, or in a state of effervescence.

6th. *Febrifuges*, consisting of nitrous powders combined with soda and tartarised antimony, given so as to dissolve in the stomach.

7th. *Calomel*. Whenever the symptoms were alarming, I always gave calomel in small doses to produce an affection of the salivary glands. Though I must confess I always gave it with reluctance, and not till the state of my patient rendered it absolutely necessary.

8th. *Lavations*. I made it a constant rule to have my patients thoroughly washed with strong soap-suds, or a solution of pearl-ash, twice a day and sometimes oftener.

9th. *Cold*. When the feverish heat was great, I generally



applied cold water, or vinegar and water, to the body generally.

All these cases of fever had completely subsided in January, 1806; and no new case occurred till the summer following, when it returned with redoubled force, and in a much greater variety of instances. It was now evidently traced to a new source. In the summer of 1804, a mill dam had been erected across the northern branch of the Mohawk river adjoining the village. This dam set the water back into a creek which in the summer had always been dry. The trees and a luxuriant vegetation completely excluded the rays of the sun from this creek through the summer following. In the winter of 1805 and 6, all these trees were cut down for fire-wood. Nothing any longer excluded the solar rays, they burst with full force upon the creek, into which a profusion of vegetables and the offals of animals had been thrown. The process of putrefaction now commenced and evolved an exhalation of deleterious gas that soon affected the inhabitants in its vicinity. About fifty persons resided near the bank of this creek: not one of these escaped an attack of a bilious remitting or typhous fever, and most of them were sick, during the whole season. They uniformly complained of the fetid effluvia which emanated from this creek; which were most offensive early in the morning. The fever gradually progressed to persons more remote, till it arrived at Broad street, which runs east and west through the centre of the village. North of this line, very few cases occurred during the whole season, while in the south, I have enumerated 150, and most of these in the immediate neighbourhood of the creek. The symptoms were very similar to those I have described for the preceding year, excepting the liver and alimentary canal, which were now more particularly the seats of disease. In one case an abscess that had formed in the liver discharged large quantities of pus through the intestines per anum.

A copious discharge also issued from the cavity of the abdomen, through the right iliac region, and also through the scrotum. These discharges continued with great profusion till the patient expired. The cases continued to increase during the latter part of June and July with astonishing rapidity. The mortality, however, was not proportioned to the menacing attitude which the fever assumed. Of two hundred cases during the months of June, July and August, but one proved mortal. The treatment was so nearly similar to

that which I have already detailed, that I conceive an account of it here to be entirely superfluous. As the summer declined, the remitting type gradually yielded to the quotidian intermittent. A few cases of dysentery appeared with some symptoms of malignity. They were however soon cured by the same treatment that had been used for the fever. This is a corroborative proof of the *Febris introversa* of the illustrious Sydenham. Women and children, who were confined generally to their houses, and lived within the influence of their exhalations, were subject to frequent relapses, which proved extremely obstinate, while those persons whose occupations led them to the healthy part of the village, generally enjoyed good health, after they had completely recovered from the first attack.

I could observe no uniform regularity in the different crises of those fevers. They variously occurred on every day from the ninth to the twenty first.

During the month of September, the fever was entirely of the intermitting type, and it had totally ceased by the last of October. As it declined, the dysentery returned in a variety of cases, accompanied with a few instances of pertussis.

It may be proper to remark, that during the months of June, July, and August, I never found a single case of intermitting or remitting fever in which the exhibition of the bark was not succeeded by manifest injury. After the first of September, when the intermissions became distinct, and depletion, and the usual evacuations had been premised, the bark was administered with the most complete success; very few cases, however, now occurred that required bleeding.

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*A case of HYDROPHOBIA, successfully treated by Mercury: communicated to the Medical Society of the State of New-York, by Dr. WESTELL WILLOUGHBY, of Herkimer county; and transmitted to the editors by NICHOLAS ROMAYNE, M. D. &c. President of that Society.*

**A** SON of Mr. Abraham Vanhyning, of Newport in the county of Herkimer, aged 12 years, was bitten by a rabid dog on the 28th of April 1807. On the 30th of the same month, about 48 hours after the bite, he became indis-

posed with suspicious symptoms of madness; such as dejection of spirits, difficult deglutition, (which at that time was considered by the parents as originating from worms in the throat) a peculiar aversion to light, expressed by endeavouring to avoid it, and by covering himself so closely with the bed clothes as to shut out every ray of it. On the first day of May, I visited the patient, and at that time learned the above statement from his parents. I found him labouring under the whole catalogue of symptoms, as described by different writers in cases of hydrophobia; impatience of light, a peculiar aversion to his friends, great thirst, violent febrile excitement; and whenever water was presented to him, an attempt to drink invariably produced a constriction of the throat, which was immediately followed by violent spasms of the whole system; with an attempt to bite every thing which came in his way; and in spite of the utmost precaution, he did actually bite out pieces of his own flesh. Finding him in this situation, and being fully persuaded of its being a case of Canine madness, I had no expectations of giving him relief; having never before seen a case of the kind, except among the animal tribe. Being fully satisfied from the universal failure of remedies in treating the complaint, that there was scarcely any chance of relief, I concluded not to be influenced by any thing which I had read on the subject. Finding the patient labouring under violent vascular action, in consequence of excessive excitement, as soon as the paroxysm was off, I had recourse to blood-letting, and took away such a quantity as to remove the tension, and lessen arterial action. Having seen that the presence of his friends, the admission of light, and an attempt to swallow any liquids served as the immediate exciting causes of spasms, I endeavoured to remove all these evidently hurtful powers. At the commencement of every paroxysm, the spasms began in the throat, the pharynx first undergoing morbid derangement; from thence they extended to the hand which had been bitten; and afterwards universal spasms ensued, with a constant attempt to bite. These paroxysms generally continued from 10 to 20 minutes. After reducing the inflammatory action, with the lancet, I thought best, on the ground of various authorities, together with my own knowledge of the medicinal properties of mercury, to give it a fair trial in this case; as the throat appeared to suffer primarily in this disease, I determined to give calomel in the following way.

I mixed about two drachms of Calomel, with twice its quan-



tity of dry sugar, and after blending them well together, I gave a teaspoonful of the mixture once in 20 minutes, until it proved violently emetic and cathartic; after which I gave it in smaller quantity and more frequently; taking particular care to keep the fauces and throat constantly overspread with it. In this way it was taken up quickly by the absorbents, and speedily affected the glands of the mouth. Within 12 hours from the first exhibition of the calomel, a gentle ptyalism was produced; upon which the violence of the symptoms abated; the paroxysms growing lighter and lighter until they disappeared entirely. The salivation was kept up a few days; after which, to my astonishment, and the disappointment of every one who saw him, he was happily restored to his disconsolate friends.

What is peculiar in this case, is, that the child was bitten by a puppy of 6 months old, which had never been bitten, to the knowledge of any one. The bitch, which brought the pup, while in the state of gestation, was known to have been bitten by a dog that was actually mad. After her young whelps were of sufficient age to wean, they were taken off and the bitch killed; she having never shown any symptoms of Hydrophobia.

About this time another of the puppies sickened, had every appearance of canine madness, and was killed. Two others of the same litter have not to my knowledge ever sickened.

The patient becoming diseased so soon after the bite, is as novel, as the other circumstances are remarkable; yet I do not hesitate, in believing the case to have been strictly hydrophobia; and the cure to have taken place in consequence of the quantity of calomel given, and the particular mode in which it was given.

In the first stage of this case, it was violently inflammatory. Had I pursued the highly stimulant, and antispasmodic plan, recommended by many, instead of the depleting plan, it requires very little discernment to pronounce what would have become of my patient.

SINGULAR CASE of DISEASE, attended with RETARDED PULSE: communicated by Dr. ORCHARD GOULD, of Branford, Connecticut, to Dr. MALACHI FOOT, of New-York.

ON the 25th of June 1808, John Smadly, a strong healthy man, aged about 24, was mowing grass in the field; the weather was warm, and his drink consisted of water brought from a neighbouring well, sometimes cold, but generally after it was warmed by the weather; the quantity of cold water taken was small, and never exceeded half a pint at a time. On the evening of the 26th, he found the common exercise of walking gave him considerable anxiety in the chest, with sighing; and he found it necessary to rest occasionally. With these complaints remaining the same until the 28th at noon, as he was walking in his house, he was suddenly seized with the same difficulty in his breast, and vision nearly departed; he was placed in a horizontal posture on the bed, and nearly lost all sense and voluntary motion. I saw him in a few minutes, found his extremities cold, a livid suffusion of the face and neck, and his pulse about 35 with weak action, which after the exhibition of a little Spt. C. C. and some delay gained preternatural force, more especially in the heart, as felt by applying my hand to the chest; white tongue, a little thirst, anxiety, deep and frequent sighing, and a little pain at the *stomach* at each pulsation. However "*ne occidisce, &c. quem sors occidit,*"—I did not bleed at this time, but substituted the warm bath; and his pulse in a few minutes rose to 50 strokes in a minute, with less convulsive action. I laid him in bed; he fell into a warm sweat and slept well through the night with very little complaint; he took draughts of succ. limon. and sal tart. 29th, pulse 28, a little hard, still stronger about the heart and large vessels, with irregular intermissions; the other symptoms as yesterday; 6 or 7 oz. blood taken from the arm; it was sisy; pulse during and after the operation 33, but in the evening and night it beat only 14 strokes in a minute. I could not repeat the blood-letting owing to an accident that had happened to my lancet. The bath was again administered, but without any advantage; he was costive, and had a dose of rhubarb, and took the draughts.

30th, Pulse ranged between 14 and 28 till 5, P. M. other symptoms as yesterday; at this time (5 P. M.) 12 ounces of blood taken from the arm; it had the appearance of the *lotura carniū*; pulse rose after the operation from 28

to 37 strokes in a minute, and at 9 in the evening to 60 and softer; the other complaints much abated.

July 1. Pulse ranged between 30 and 50, but it was soft; his other complaints nearly gone; sat in a chair.

2nd. Pulse this forenoon 18 with anxiety, &c. another blood-letting was contemplated; some delay took place in discussing the question of blood-letting with the family, during which, his pulse increased in frequency, and in a few hours it stood at 54; a copious sweat then broke out with an abatement of the anxiety, &c. he has taken the draughts every day.

3d. He was convalescing; but his pulse was slower than natural for several days, till it arose to about 70; he was soon after and ever since able to use exercise and labour without inconvenience.

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OBSERVATIONS on PHTHISIS PULMONALIS, or Consumption of the Lungs: communicated by Dr. JOSEPH YOUNG, of New-York, to Dr. MITCHILL.

**I**N my Treatise on Astronomy, Physiology, &c. where I treated on consumption, in page 170, I observed, that the medicines that were *salutary* in the *morning* were frequently *injurious* in the *evening*; and assigned as the cause, that consumptive patients are generally too *cold* in the *morning*, occasioned by profuse night sweats, and consequent debility; and are *feverish* in the *evening*: and recommended the use of warming balsamic remedies in the forenoon, and cooling remedies in the evening.

But finding this hint neglected, I think it incumbent on me to be more explicit in explaining the cause, why this should invariably be the case, in the advanced stages of the disease; as an accurate knowledge of the *cause* indicates what should be done to *remove* it, and thereby prevent its pernicious effects. But to effect this purpose, I must recur to physical principles. I conceive that I have proved in the 85 and 86, 96 and 97, and 116, 117 pages of the Treatise, that *fire*, in its various combinations, and modifications, is the only physical or *generative* cause of *heat*, *fluidity*, *motion*, *life*, *sensation*, and *muscular motion*; for without *fire*, there could not be any *heat*; and without *heat*, nothing would remain



*fluid*; and without *fluidity*, there could be neither *motion*, *life*, nor *sensation*. The electric fluid is the most active, energetic modification of *fire*, and the universal physical agent, throughout our system. It is the chief ingredient in atmospheric *air*, and the sole cause of its *elasticity* and activity. But as no simple substance, alone, can generate *motion*, I conceive it can be demonstrated by experiments, that the electric fluid is composed of pure elementary *fire* and *oxygene*. When this elastic *air* is inspired, the electric part (which I shall hereafter call *pyretos*) pervades the lungs, and is immediately transmitted with the blood to the heart, which it invigorates to perform its constant action, as long as regular respiration is continued. (see page 144.) But if the *inert* part of the *air* which is expelled in expiration, be collected, it will extinguish both animal life and flame; not because it has derived any poisonous quality from the lungs, but because it has been deprived of the *pyretos*, which gave it elasticity. When pure atmospheric *air* is inspired by an healthy vigorous person, the *pyretos* being excited into immediate action not only stimulates the heart and vascular system, but passes with the fluids to the remotest parts of the body, promoting circulation, and preventing cohesions, and obstructions, where the muscular force of the heart could have but little, if any influence; (see page 75). Generating and diffusing *heat*, and promoting circulation in its passage, the *pyretos* passes off with the perspirable matter, reduced to an invisible vapour by *heat* and *motion*; so that it may be re-supplied at the next inspiration. See page 97, Treatise.

As long as this process is regularly performed, the person generally enjoys health.

But when the debilitated consumptive patient inspires this pure *air*, the *pyretos* cannot communicate a sufficient degree of power to the relaxed fibres of the heart, to propel the blood with sufficient velocity, to excite its energies to generate *heat*, or pass off in perspiration. It will therefore pass on with the fluids in languid circulation, accumulating all the forenoon, until the patient takes a warm dinner, or a dish of warm tea, which soon excites and brings the whole accumulated stock into extreme active operation, which produces an agitation and *heat* above the *sweating point*. The inspissated fluids are now forced with velocity on the tender irritable lungs: the patient retires to bed, and has a violent fit of coughing, until the viscid matter is in some degree attenuated, and expelled by *heat* and *motion*. Being greatly fatigued

with fever and coughing, he sinks into an unrefreshing slumber, which sometimes continues until day-light. During the latter part of this time, the circulation becomes very languid, and perspiration deficient, until the patient begins to stir and cough, which sets the almost dormant *pyretos* in very rapid motion. The pores being relaxed, and the viscid fluids in some degree attenuated, a most profuse debilitating sweat ensues, which sinks the unhappy patient lower. He at length arises; the *cold* and *pressure* of the *air* upon the external vessels on the surface propel the fluids inwards upon the tender irritable lungs, and produce a violent fit of coughing: and as the debility is daily increasing, the *inspissation* of the *fluids*, and the *retention* of both the *pyretos* and *viscid* matter must increase, in proportion to the diminution of *heat* and *motion*. Under these circumstances, it is obvious that the intention should be to defend the body from the action of the cool external air, all the forenoon; and by the balsamic electuary and moderately warming diaphoretics, to support the *heat* of the body, and promote a moderate equable perspiration, which will both prevent the *inspissation* of the *fluids*, and the *retention* of the *pyretos*; and thereby diminish the *fever* and *cough* in the evening. But to check it more effectually, the patient should begin about an hour before the accession of the fever, to take 30 or 40 drops of Spiritus Nistri dulcis in a strong warm tea of mullen flowers, sweetened with Spanish honey. A wine-glass-full of the tea may be drank warm every hour, without the spirit, and with it every third hour, until the fever begins to abate; and then begin and take the bulk of an hazelnut of the balsamic electuary, every third or fourth hour; and take a wine-glass-full of a moderately strong infusion of the bark of the wild allspice as frequently as it may be found necessary to promote the most gentle perspiration; avoiding exposure to a current of cold air all the forenoon. If the cough is severe, cut open 5 or 6 good figs, and macerate them in a pint of boiling hot water, bruise them in the water, and sip it warm, frequently, to obtund the acrid stimulating matter, and promote expectoration.

If the cough is very severe, a dose of paregoric elixir may be taken in warm mullen tea at bed-time; but at no other time, except in case of the greatest necessity. He should wear flannel shirts, and a plaster of Burgundy pitch of eight inches long, reaching from the nape of his neck along the spine between the shoulder blades, which should be renewed every eight days. The physician should always remember,

that *heat* and *motion* are the sole causes of *fluidity*; that *heat* renders metals *fluid*, and that *cold* can condense and consolidate *mercury*, so that it can be extended by the hammer. From hence it is evident, that the lymph and finer fluids may be *inspissated* by the *cold*, not only to form obstructions in the lungs, and produce a cough, but by *obstructing* the pores of the skin, to check *perspiration*, retain the *pyretos* (which should pass off regularly;) and thereby produce a *fever*. The *salts* of the *blood* are also *retained* until they acquire a destructive degree of acrimony, to irritate and corrode the lungs, and aggravate the fever. These salts, in the advanced stages of the disease, may be perceived at the bottom of the pot, like brick-dust. They sometimes become *alkalescent*; and by combining with the oily part of the fluids, they form a destructive *soap*, which deterges and carries off the viscous matter which lines the inside of the vessels, to defend them from the action of acrimonious fluids. I saw two cases of this kind in the winter of 1763. The urine frothed like strong soap-suds. I was then ignorant of the cause, but suspected from the appearance of the urine, that it was saponaceous. I put some of it into a small gallypot, and poured in a few drops of elixir of vitriol, with which it effervesced, and the froth disappeared in a few seconds. I then gave the patient 15 drops of the elix. in a wine-glass-full of springwater, every second hour, which soon reduced the urine to its natural appearance, and removed a very troublesome sensation of internal heat, and uncommon languor. But possibly, it may be objected that there is no such danger of the inspissation of the fluids as I apprehend, it having been ascertained, by introducing a thermometer into the armpit, that the *heat* of the *body* is nearly the *same*, both in *hot* and *cold* weather.

This is a fallacious experiment, and is but partially true, as it respects strong vigorous subjects, but absolutely *false*, with respect to invalids. Their *heat* is frequently very unequally distributed. The *face* of an hysterical patient will frequently *glow* with *heat*, while her *feet* are intolerably *cold*. *Cold dry elastic air* contains more of the electric fire, in a given quantity, or space, than *hot rarefied air*; and when it is inspired by a vigorous person, the *pyretos* is immediately excited into action, by a strong free circulation, diffusing *heat* in its passage to every part of the system.

But when this cool elastic *air* is inspired by a consumptive patient, its sudden rarefaction by the internal *heat* will overstretch the tender air vesicle of the lungs, and thereby in-



crease the general debility. And for want of a free vigorous circulation, to give the *pyretos* the necessary degree of activity, it will remain almost dormant, in the remote parts of the system, as a magazine to furnish an ample supply of pyretic matter, to increase the *heat* and violence of the *fever* in the *evening*. Every remitting and intermitting fever is produced by an abatement of the natural degree of *heat*, and frequently with a rigor and convulsive shuddering, in which the *fluids* are *inspissated*, and the *pyretos* retained, which had been inspired, during the cold stage; as it is evident, that it could not be passed off in perspiration, but is confined to the internal parts, until the hot fit commences. The *inspissation* of the *fluids*, and the *retention* of the *pyretos*, is the real cause why the *heat* and violence of the *fever* are proportioned to the *degree* and *duration* of the *cold fit*; unless the patient is weakened to such a degree, that the powers of reaction are extinct, in which case the patient expires in the cold fit. From hence it is evident, that that *inspissation* of the *fluids*, and the consequent *retention* of the *pyretos* is the *immediate* or *proximate* cause of all *remitting* and *intermitting fevers*; which most clearly indicates the propriety of maintaining the *heat* of the *body*, and promoting a *moderate* degree of *perspiration* during the *intermission*; and this is evidently more indispensably necessary in the *Hectic* than in any other *intermittent*, on account of the tender condition of the lungs. If this mode of treatment is persisted in during the *forenoon*, it will *mitigate* the *fever* in the *evening*. I gained this knowledge by *experience* in the year 1763. The most successful method of curing Agues, elucidates and corroborates both my theory and practice; for if we can *increase* the *strength* and support the natural *heat* during the *intermission*, we prevent the *return* of the *cold fit* and all the subsequent train of symptoms. (See page 107, to the 113, and the Peruvian Electuary 115.)

There is an erroneous opinion very generally received, concerning Consumption, to wit; that although it is a flattering disease, and frequently gives promising signs of recovery, it is nevertheless absolutely *incurable*. These opinions have been formed upon the following circumstances, to wit: many practitioners have not discriminated with sufficient accuracy between the different kinds of the diseases, nor have they attended to the different modes of treatment, that are necessary to be observed in the same kind of the disease, in different constitutions, ages and temperaments; but too often

treat their plethoric, emaciated, scorbutic, and scrofulous patients, in the same manner, with some nostrum or medicines that have succeeded, in curing some kind of consumption; giving it morning, noon, and night, without any regard either to the *stage* of disease, or the *heat* or *cold* of the *body*. In the course of my practice I have met with two melancholy instances of the fatal effects of this indiscriminate mode of practice. I was called to visit a man who had caught a cold which produced a hoarse, dry-bound cough, a dry-skin, feverish heat and flushing of the cheeks. Under these circumstances, I had determined to take about eight ounces of blood from one of his arms, and put him into a warm bath, cause him to inspire the warm vapour of an infusion of mullen flowers, and to take a wine-glass-full of it frequently, sweetened with honey, and the balsamic linctus, to promote expectoration. But his family being anxious to know my opinion, I told them the case required great care and judgment, to bring it to an happy issue: they were alarmed and wished to have a physician whom they named, called into consultation. When he came, a messenger was sent for me, but in the interim, he had strenuously recommended a decoction of the peruvian bark. When I arrived, he told me what he had proposed, and mentioned what he called a desperate case, in which it had succeeded, when other remedies had failed. I told him, that if the *bark* had ever been serviceable in any case, attended with a cough, it must have been in the case of a feeble phlegmatic patient, whose lungs were extremely relaxed, who expectorated great quantities of crude indigested matter without much difficulty and without any fever. He admitted that I had described the patient's case exactly, but still insisted upon trying the effects of the decoction, a few days. I observed the case of Mr. L. was very different from that of the patient which he had mentioned; and that the decoction would certainly *increase* the *fever* and *aggravate* the *cough*, and risk the rupture of a blood-vessel in the lungs. I then told the patient the effects which the decoction would certainly produce. But the Doctor had expatiated so eloquently on the extraordinary virtues of the bark in consumptions, that the patient wished to try its effects, for a few days; in which time it exactly fulfilled what I had prognosticated, which added another victim to ignorance and obstinacy. The second case was so similar to this, that I conceive it needless to insert it, as he fell a victim to the same means prescribed by a different practitioner.

(To be continued.)

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## REVIEW.

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*REPORT of the Secretary of the Treasury, on the subject of PUBLIC ROADS and CANALS, made in pursuance of a resolution of the Senate of the United States, of March 2d, 1807. Printed by order of the Senate, April 12th, 1808. Washington. Weightman, 8vo, 1808. pp. 123.*

**S**TRANGE as it may seem, it is nevertheless true, that this publication by Mr. Gallatin on a subject of great permanent and national importance, has attracted less notice than most of the political pamphlets of the day. Its object is, not to agitate, but to be useful. And therefore, like the greater part of scientific projects and of questions touching the general weal, it is neither sought nor read with avidity. Few persons talk about it; for among the personal and pressing calls of the majority, there is seldom either inclination or leisure to study vast or extensive plans of improvement. With limits too broad for the comprehension of the multitude, and of a character little adapted to interest their private or local feelings, this valuable collection of information on the internal improvement of our country has attracted a share of regard greatly below its merits.

The history of the present publication is concisely this.—The company that undertook to connect the Delaware with the Susquehannah by means of a canal across the isthmus, found themselves unable to complete their undertaking for want of funds. In the suspended condition of their works, they applied to Congress for public countenance and pecuniary aid. After some discussion in the Senate, the appropriation of money or lands for this particular object was dropped; and a resolution passed directing the Secretary of the Treasury to report at the ensuing session, a plan for the application of such means as are in the power of Congress, to the opening of roads and the making of canals. He was also instructed to make a statement of the undertakings of that nature, which, as objects of public improvement, might require and deserve the aid of government; also, an account of such works of this kind as had been commenced, the progress made in them, and the means and prospect of their completion, with such other information, as in his opinion would be material to the subject.



In consequence of this proceeding of the Senate, the Secretary transmitted to discreet and proper persons the following queries, in a circular letter.

1. Points united by canal, and their distance by said canal.
2. Elevation of the highest ground through which canal passes ; descent thence to the two extremities ; and number of miles where canal is level.
3. Number, dimensions, contents, construction, and situation of locks.
4. Supply of water ; whence obtained ; its amount reduced to cubic feet per minute, hour or day ; its elevation above the highest point of the canal ; length of feeders ; situation and contents of reservoirs. What additional resources may be resorted to, if the present supply should fall short of the quantity wanted ?
5. Designation of such parts of the route where the natural or improved bed of rivers is used.
6. Depth and breadth of canal ; burthen of vessels ; breadth of towing paths.
7. Aqueducts across valleys or rivers ; tunnels through hills : bridges across the canal.
8. Particular obstructions and difficulties surmounted or to be encountered.
9. Defects either in the plan or execution, and the proposed remedies.
10. Estimate of the tonnage of vessels ; species, weight and value of the articles annually conveyed by the canal ; expense of carriage by canal, compared with land or river carriage before canal was made ; time employed in navigating through the whole canal.
11. Capital already expended, vested or wanted for completing the work.
12. Expenses per mile and in the whole, and as far as practicable, of every component part of the work in all its details.
13. Rate and gross amount of tolls ; annual expenses of repairs and contingencies ; annual nett income.
14. Substance of charters and acts of legislature on the subject.

#### QUERIES RESPECTING ARTIFICIAL ROADS.

1. Points united and their distance.

2. Elevation of the hills over which the road passes ; greatest angle of ascent which has been allowed.

3. Breadth, form, materials of the artificial road.

4. Bridges, their dimensions, materials, construction.

5. Particular obstructions and difficulties surmounted, or to be encountered.

6. Expenses per mile, and in the whole, and as far as practicable, of every component part of the work in all its details, viz. forming the bed of the road, cutting hills, quarrying, transporting, breaking, laying stones or gravel, &c.

7. Capital already expended, vested or wanted for completing the work.

8. Rate and gross amount of tolls ; annual expenses of repairs and contingencies ; annual nett income.

9. Substance of charters and acts of legislature on the subject.

In reply to these queries, very large communications were made to Mr. G. From this voluminous body of documents, he has made a brief and perspicuous abstract ; choosing rather to present to the Senate a selection or analysis of the whole, by arrangement and condensation of the principal facts, than to lay before them the crude mass of materials. This laborious task he has executed in a manner so lucid and instructive, that he may fairly be said to have compiled, perhaps, the most useful work on this branch of political economy, that ever was presented to his fellow citizens.

From the following letter from Mr. Gallatin to Dr. Mitchell, one of the Senators from New-York, which accompanied his report, its design and object will be more fully understood.

“ I send this day to the Senate a report on the subject of Roads and Canals, which I beg leave to recommend to your special patronage ; not certainly on account of its intrinsic merit, but because the subject itself deserves a much greater attention than has heretofore been paid to it by our statesmen. I have availed myself of the order of the Senate to procure all the information which could be obtained not only on works already existing or undertaken, but also on those general geographical features of the country and levels which must determine national lines of communication. And viewing a general system of improvements intended to connect the most distant parts of our extensive territory, as one of the strongest bonds of union which can be superadded to those which already connect the several states, I have at-

tempted to point out the great outlines of such system, and the practicability of effecting it without impairing the revenue or breaking on any other rational object of expenditure, plans of defence, &c.

“ It is late in the session ; yet it is doubtful whether, supposing this to be passed on sub silentio, any more favourable opportunity will ever offer to awaken public attention to that subject and to lay the lines of the system. I would wish at least that it might not be postponed at once till next session without being read ; but that it may be committed and an extra number of copies printed—say 1200. The only documents useful to publish with it, are two communications of a general nature by Latrobe and Fulton, respectively. The other voluminous papers which I send with the report, consist of the details, extracted in the report, of all the Canals completed and undertaken in the United States, and also of the most important Turnpikes. The extract will be quite sufficient for publication.

“ In addition to this, if there be not time to take up the subject at large, there is one measure suggested at the close of the report, useful in itself, and which would at all events keep the subject alive and bring it again before you next session. It is to give an authority to cause to be taken such surveys and levels on the most prominent lines of communications, recommended in the Report, as would better ascertain their respective practicability and expence. You may give what you please ; you know that I am not wasteful, and I have procured you all the mass of facts now reported without expending a single cent. I think, however, that fifty thousand dollars might be appropriated for that object.

“ Finally, you may make an additional appropriation for the road from Cumberland to (Red Stone) Brownsville ; the only work of the kind undertaken by the United States, a part of the general plan, and which should not be suffered to die away.

Having thus given the origin and progress of this inquiry, we proceed, in the next place, to a more particular view of it. Mr. G. has disposed the facts concerning Canals, collected by him, under four general titles. I. Great canals from north-east to south-west, along the Atlantic sea-coast. To this class belong, 1. The Massachusetts canal over Sandwich Isthmus between Barnstable bay and Buzzard's bay ; with its collateral modifications and amendments from Weymouth to Taunton ; 2. The New-Jersey canal for connecting the



Raritan with the Delaware, between Brunswick and Trenton; 3. The Delaware and Chesapeake canal, to make a junction between Christiana creek and Elk-River, as suggested in a former part of this review; 4. The Chesapeake and Albemarle canal, to unite those two sounds or bays by a water communication extending from Elizabeth river, above Norfolk, to North-west river, near Currituck. In those several works, he computes a joint amount of ninety eight miles of distance, five hundred and forty eight feet of lockage, and an expence of no more than three millions and fifty thousand dollars. And for this inconsiderable sum, may an inland navigation be opened, from Massachusetts bay to the southern waters of North Carolina. II. Communications between the Atlantic ocean and the waters running westward, beyond the great ridges which divide the country. These chains of mountains, whether called Alleghany, Apalachian or by any other names, he estimates as being on an average 110 miles wide and 3000 feet high. The spine dividing the waters he believes to be nearly 250 miles from the Atlantic shore. They are too high for any connection to be made over or across them by means of locks. Roads are therefore the chief improvement from which any advantage can be expected; though these may be shortened by removing, as much as possible, the impediments to the navigation of rivers, and thereby lengthening the channel of transportation by water. Projects of certain lines or routes, from Philadelphia to the confluence of the Conemaugh and Loyalhannon branches of the Alleghany river; from Washington City to the junction of the Cheat and Monongahela; from Richmond to the part of the Kenhawa below the falls; and from Savannah or Charleston, to some navigable branch of the Tennessee; are submitted to the consideration of the Senate. Mr. G. then gives a relation of the work actually done, or which ought to be accomplished. 1. On the Santee Canal in South Carolina; 2. On the lower or great falls of Roanoke in North Carolina; 3. On the James River Canal in Virginia. 4. At the great Falls of Potomac above Georgetown. 5. On the Susquehannah Canal between Pennsylvania and Maryland, and 6. On the Ohio and its boatable or navigable streams. To complete the four great roads east and west across the mountains, the estimated expence is 2,800,000 dollars. And the improvements in the navigation of the four great rivers are computed at 1,500,000 dollars more. The sum allotted for opening the Falls of Ohio is 300,000 dollars; making all to-

gether an amount of 4,600,000 dollars, for effecting all these capital objects. III. Intercourse of the Atlantic Rivers with the St. Lawrence and the Great Lakes. Herein, the Secretary offers an account of, 1. The northern navigation by locks, between the Hudson and Lake Champlain. 2. The western connection by the like means, between the Mohawk and Lake Ontario. 3. A Canal to make a navigable bend, to surmount the cataract of Niagara. These are all in New-York; and will require for their intire accomplishment, four millions of dollars. It is calculated that for one million, the Falls of Niagara might be rendered passable by sloops. IV. Interior Canals; embracing those which do not fairly belong to either of the preceding classes. In this part, are contained the materials which Mr. G. has derived from credible sources, concerning 1. The Merrimac or Middlesex Canal in Massachusetts. 2. The Schuylkill and Delaware Canal. 3. The Schuylkill and Susquehannah Canal, both in Pennsylvania. 3. The Appomatox Canal in Virginia: 4. The Neuse and Beaufort Canal, and 5. the Cape-Fear Canal, both in North-Carolina: and 6. the canal Carondelet, at New Orleans. Such is the copious nature of the present work, that we do not recollect any Canal of much note that is omitted. Though its size is so moderate, it comprehends in a condensed and compact form an abundance of precious matter.

On the other great branch of his report, to wit, Turnpike or artificial Roads, Mr. G. has also offered various information. This is composed chiefly of abstracts from statutes of New-York, Connecticut, Pennsylvania, and the other states which have incorporated Turnpike companies, and from the letters he had received on their construction, cost and management.\* The expence of doing as much more as it would be proper for the nation to atchieve, as to other and additional improvements through the States is, 3,400,000 dollars. And this added to all the preceding items, makes an aggregate sum, for the whole of the canals and roads which the public Treasury ought to patronize, of twenty millions of dollars.

\* In the course of this comprehensive survey, Mr. G. dwells with peculiar stress upon the completion of a great turnpike for the conveyance of the Mail, and for travelling, through the whole Continent from Maine to Georgia, a supposed distance of 1600 miles. The expence of this truly patriotic and national work he estimates at 4,800,000. He also proposes the opening of roads for a more safe and speedy intercourse between the General and Territorial Governments, especially between Washington and Detroit, St. Lewis and New-Orleans. This he supposes may be done for 200,000 dollars.

Now comes on the comfortable view of the subject, at which every patriotic heart will rejoice.

Mr. G. shows that if the United States continue in peace, and do not exhaust their finances in vain and ruinous wars, the federal revenue will afford a surplusage equal to these dignified and useful purposes. With such encouragement before him, who can withhold the most hearty wishes and fervent prayers, that our people may avert or escape the violent conflicts of the times, and be enabled to realize the superb and enchanting prospects contained in the present report.

We cannot however do full justice to this publication without a quotation.

“An annual appropriation of two millions of dollars, would accomplish all those great objects in ten years, and may without inconvenience, be supplied in time of peace, by the existing revenues and resources of the United States. This may be exemplified in several ways.

“The annual appropriation on account of the principal and interest of the public debt, has, during the last six years, amounted to eight millions of dollars. After the present year, or at farthest, after the ensuing year, the sum which, on account of the irredeemable nature of the remaining debt, may be applied to that object, cannot in any one year exceed 4,600,000 dollars, leaving therefore from that source alone, an annual surplus of 3,400,000 dollars, applicable to any other object.

“From the 1st January, 1801, to the 1st of January 1809, a period of eight years, the United States shall have discharged about 34 millions of the principal of the old debt; or, deducting the Louisiana debt, incurred, during the same period, and not yet discharged, about 23 millions of dollars. They may with equal facility, apply in a period of ten years, a sum of 20 millions of dollars, to internal improvements.

“The annual permanent revenue of the United States, calculated on a state of general peace, and on the most moderate estimate, was, in a report made to Congress on the 6th day of December, 1806, computed for the years 1809—1815, at 14 millions of dollars. The annual expenses of the peace establishment, and including the 4,600,000 dollars, on account of the debt, and 400,000 dollars for contingencies, do not exceed eight millions and a half; leaving an annual surplus of five millions and a half of dollars. To provide for the protection and defence of the country, is undoubtedly the



object to which the resources of the United States, must, in the first instance, be applied, and to the exclusion of all others, if the times shall require it. But it is believed, that times of peace, (and to such period only are these remarks applicable) the surplus will be amply sufficient to defray the expences of all the preparatory measures of a permanent nature which prudence may suggest, and to pay the sum destined for internal improvements. Three millions annually applied during the same period of ten years, would arm every man in the United States, fill the public arsenals and magazines, erect every battery and fortification which could be manned, and even, if thought eligible, build a navy. That the whole surplus would be inadequate to the support of any considerable increase of the land or naval force kept in actual service in time of peace, will be readily admitted. But such a system is not contemplated : if ever adopted, the objects of this report must probably be abandoned. For, it has not heretofore been found an easy task for any government to indulge in that species of expenses, which, leaving no trace behind it, adds nothing to the real strength of the country, and at the same time to provide for either its permanent defence or improvement.

“ It must not be omitted that the facility of communications, constitutes, particularly in the United States, an important branch of national defence. Their extensive territory opposes a powerful obstacle to the progress of an enemy. But on the other hand, the number of regular forces, which may be raised, necessarily limited by the population, will for many years be inconsiderable when compared with that extent of territory. That defect cannot otherwise be supplied than by those great national improvements, which will afford the means of a rapid concentration of that regular force, and of a formidable body of militia, on any given point.

“ Amongst the resources of the Union, there is one which from its nature seems more particularly applicable to internal improvements. Exclusively of Louisiana, the general government possesses, in trust for the people of the United States, about one hundred millions of acres fit for cultivation, north of the river Ohio, and near fifty millions south of the state of Tennessee. For the disposition of those lands a plan has been adopted, calculated to enable every industrious citizen to become a freeholder, to secure indisputable titles to the purchasers, to obtain a national revenue, and above all to suppress monopoly. Its success has surpassed

that of every former attempt, and exceeded the expectations of its authors. But a higher price than had usually been paid for waste lands by the first inhabitants of the frontier, became an unavoidable ingredient of a system intended for, general benefit, and was necessary in order to prevent the public lands being engrossed by individuals possessing greater wealth, activity or local advantages. It is believed that nothing could be more gratifying to the purchasers, and to the inhabitants of the western States generally, or better calculated to remove popular objections, and to defeat insidious efforts, than the application of the proceeds of the sales to improvements conferring general advantages on the nation, and an immediate benefit on the purchasers and inhabitants themselves. It may be added, that the United States, considered merely as owners of the soil, are also deeply interested in the opening of those communications, which must necessarily enhance the value of their property. Thus the opening of an inland navigation from tide water to the great lakes, would immediately give to the great body of lands bordering on those lakes, as great value as if they were situated at the distance of one hundred miles by land from the sea-coast. And if the proceeds of the first ten millions of acres which may be sold, were applied to such improvements, the United States would be amply repaid in the sale of the other ninety millions.

“The annual appropriation of two millions of dollars drawn from the general revenues of the union, which has been suggested, could operate to its full extent only in times of peace and under prosperous circumstances. The application of the proceeds of the sales of the public lands, might perhaps be made permanent until it had amounted to a certain sum, and until the most important improvements had been effected. The fund created by those improvements, the expense of which has been estimated at twenty millions of dollars, would afterwards become itself a perpetual resource for further improvements. Although some of those first communications should not become immediately productive, and although the same liberal policy, which dictated the measure, would consider them less as objects of revenue to government, than of increased wealth and general convenience to the nation, yet they would all sooner or later acquire, as productive property, their par value. Whenever that had taken place in relation to any of them, the stock might be sold to individuals or companies, and the proceeds applied to

a new improvement. And by persevering in that plan, a succession of improvements would be effected, until every portion of the United States should enjoy all the advantages of inland navigation and improved roads, of which it was susceptible. To effect that great object, a disbursement of twenty millions of dollars, applied with more or less rapidity according to the circumstances of the United States, would be amply sufficient.

“ The manner in which the public monies may be applied to such objects, remains to be considered.

“ It is evident that the United States cannot under the constitution open any road or canal, without the consent of the State through which such road or canal must pass. In order therefore to remove every impediment to a national plan of internal improvements, an amendment to the constitution was suggested by the executive when the subject was recommended to the consideration of Congress. Until this be obtained, the assent of the States being necessary for each improvement, the modifications under which that assent may be given, will necessarily control the manner of applying the money. It may be however observed that in relation to the specific improvements which have been suggested, there is hardly any which is not either already authorised by the States respectively, or so immediately beneficial to them, as to render it highly probable that no material difficulty will be experienced in that respect.

“ The monies may be applied in two different manners : the United States may with the assent of the States, undertake some of the works at their sole expense ; or they may subscribe a certain number of shares of the stock of companies incorporated for the purpose. Loans might also in some instances be made to such companies. The first mode would perhaps, by effectually controlling local interests, give the most proper general direction to the work. Its details would probably be executed on a more economical plan by private companies. Both modes may perhaps be blended together so as to obtain the advantages pertaining to each. But the modifications of which the plan is susceptible must vary according to the nature of the work, and of the charters, and seem to belong to that class of details, which are not the immediate subject of consideration.

“ At present the only work undertaken by the United States at their sole expense, and to which the assent of the States has been obtained, is the road from Cumberland to Browns-



ville. An appropriation may for that purpose be made at any time. In relation to all other works, the United States have nothing at this time in their power but to assist those already authorised; either by loans or by becoming stockholders; and the last mode appears the most eligible. The only companies incorporated for effecting some of the improvements considered in this report as of national and first rate importance, which have applied for such assistance, are the Chesapeake and Delaware canal, the Susquehannah canal, and the Dismal Swamp companies; and authority might be given to subscribe a certain number of shares to each, on condition that the plan of the work to be executed should be approved by the general government. A subscription to the Ohio canal, to the Pittsburgh road, and perhaps to some other objects not fully ascertained, is also practicable at this time.

“As an important basis of the general system, an immediate authority might also be given to take the surveys and levels of the routes of the most important roads and canals which are contemplated: a work always useful, and by which the practicability and expense of the undertakings would be ascertained with much more correctness than in this report. A moderate appropriation would be sufficient for those several objects.”

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*American Ornithology, or the Natural History of the BIRDS of the United States. Illustrated with plates, engraved and coloured from original drawings taken from nature. By ALEXANDER WILSON, vol. 1. imperial quarto. Philadelphia, Bradford and Inskeep, pp. 158, 1808.*

HOW deeply it is to be regretted, that the knowledge of those things of which the Creator has formed the world we inhabit, should be so generally neglected in fashionable seminaries of learning, and be considered as of low value, in what is called a liberal education! When we consider the natural objects by which we are surrounded, how various and interesting are their relations to us! With what pleasure and avidity does the infant read the book of nature, until his curiosity is damped and his taste perverted by the interference of art!

When his eyes are made familiar with the wonders of light, and the beauties of vision; when he finds himself enveloped in an all surrounding atmosphere that furnishes breath to his nostrils; and when he observes the solid body of the ground supporting him in all his motions; it is rational to suppose he would be impelled, as his faculties unfolded, to acquire some knowledge of the luminous emanation from the sun; of the gases which surround the earth, and of the real constitution of the terraqueous globe itself.

When he further finds the land overspread with plants, some of which offer him nourishment, others supply him with fuel and timber, and others again annoy him with poison, he is impelled by the strongest considerations to investigate their qualities and uses. And in procuring sustenance, in learning the use of fire, in the construction of houses, in the selection of wholesome food, and in the avoiding of noxious productions, man is incessantly taking lessons in the great school of nature. So when he became acquainted with the animals who possessed with himself a joint occupancy in the soil, and discovered that some could supply him materials for aliment, clothing, and many pressing wants, while others were thirsting for his blood and lying in wait to destroy him, and that others again amused him by their innocent gaiety and diversified manners, he must have been led by a kind of necessity to a more intimate knowledge of the creatures who peopled the land, the water and the air.

This branch of natural knowledge, when cultivated in detail, is called the *History of Animals*. When pursued upon an enlarged plan and upon systematic principles, it forms the *Science of Zoology*, and that branch of Zoology which treats of the feathered race is termed *Ornithology*.

Mr. Wilson has undertaken a display of the Ornithology of the United States. That extensive region is frequented by a great number and variety of birds. Their history has afforded scope for the exercise of his utmost industry and research. And there is perhaps no department of physicks, that more eminently combines amusement with instruction than this. It is hoped that the persons who read his descriptions and inspect his figures will experience this two-fold delight. Great, it appears to us, will be the satisfaction, that the farmer, the country gentleman, the rural sportsman, the practical naturalist, and even the accomplished lady, may derive from the work now under consideration.

The author, as we learn, had an early predilection for these

enquiries. To indulge them the better, he left his native country, Scotland, where the preceding Zoologists had left but little for their successors to discover, with the expectation of finding a wider and more fertile field for his talents, in North America. After devoting the principal part of sixteen years to learn the peculiar characters and manners of our birds, he has offered to the public a specimen of his abilities, in this splendid volume. Herein are contained the delineations of thirty four species, in thirty seven figures. We are assured they are all copied exactly from life and nature. As far as our own observations extend, this really appears to be the fact. The greater part of the drawings are of the natural sizes. Taste and judgment are combined in their expressions and attitudes. The colouring is very much in the style and execution of Catesby, Edwards and Buffon, and it is neither unjust nor extravagant, to add the name of Wilson to the list on which those zoological worthies occupy so high a place.

To form a proper estimate of the present work, it ought to be remembered that there is no entire collection of American Ornithology extant. The greater part of our birds have indeed been observed in their living state by authors, or have been transmitted to Europe in the form of dried preparations, by collectors. But still there existed errors in respect to many particulars, and ignorance as to a number more. The former could only be corrected and the latter removed, by observations made on the spot. It was requisite for the full elucidation of so complicated an enquiry, that the truth should be ascertained where the living species could be observed in their native regions, and additional facts established in the places of their occurrence. Mr. Wilson, being long resident in the United States, has enjoyed more favourable opportunities than any of his predecessors; and he seems to have improved them diligently by tours and excursions through the country. Thus he was enabled to distinguish the colours and shapes of birds at different ages, the characteristic marks of male and female, the times of their migration, the direction of their flights, the substances they take for food, the materials with which they construct their nests, the number and colour of their eggs, their musical notes and variety of singing, their manners and behaviour; and in short, the circumstances that enable us to know all that is valuable about them. To all these means of obtaining information, and to the most ardent zeal for making the best



use of it, Mr. W. has added the quality of a good draughtsman. With his pencil he has been enabled to express in proper hues and forms upon paper, many of those niceties and peculiarities of which it would be impossible to convey adequate ideas in words. We therefore receive this first volume of a great work on the Ornithology of our country, with a hearty welcome. We hope the author will be favoured with health and industry to complete it. And we should feel a degree of affliction and mortification, if an undertaking of such beauty and extent should be discontinued, through the failure of patronage.

The species described in this first volume, are the red-start, Baltimore bird, black-capped titmouse, black-throated bunting, blue jay, blue-bird, brown-creeper, butcher-bird, cedar-bird, crested titmouse, downy woodpecker, golden-winged woodpecker, gold-crested wren, hairy woodpecker, house-wren, indigo-bird, Maryland yellow-throat, orchard-oriole (male, female and two varieties), pine-grosbeak, purple finch, red-bellied nuthatch, red-headed woodpecker, red-bellied woodpecker, robin, ruby-crowned wren, shore-lark, summer-redbird, (male and female,) white breasted nuthatch, winter-wren, wood thrush, yellow-bird, yellow-breasted chat, yellow-bellied-woodpecker, and yellow-throated fly-catcher. By this it will be perceived that the birds are treated indiscriminately, and without regard to method, in their collocation. But notwithstanding the adoption of this course, the author has not been neglectful of system. For he has generally followed the method pursued in LATHAM's *Synopsis*, and *Index Ornithologicus*. This eminent naturalist divided the class of birds into two great sections, *Land Fowls* and *Water Fowls*. The former he subdivided into six orders, 1. *Accipitres*, 2. *Pica*, 3. *Passeres*, 4. *Columbæ*, 5. *Gallinæ*, 6. *Struthiones*; and the latter into three orders, 7. *Grallæ*, 8. *Pinnatepedes*, and 9. *Palmipedes*; making nine orders in the whole. He has also, in addition to the common and popular names of the species, given their various synonymes from the best scientific books, and, often as convenient, referred to the specimens extant in the rich and instructive Museum of Mr. Peale, in Philadelphia.

Having thus analyzed Mr. W.'s performance, we should give our readers a quotation, that they might the better judge for themselves from the introduction, p. 1, beginning at the second line from the bottom, *as to the nature*, and ending on the 4th page, with the words *pursuit can inspire*. But

our limits being rather restricted, we offer them his account of the Blue-bird, from which an opinion may be formed of Mr. W.'s powers as a Poet as well as a Naturalist.

"The preliminaries being thus settled, and the spot fixed on, they begin to clean out the old nest, and the rubbish of the former year, and to prepare for the reception of their future offspring. Soon after this, another sociable little pilgrim (*Motacilla domestica*, House Wren), also arrives from the south, and finding such a snug birth pre-occupied, shews his spite, by watching a convenient opportunity, and in the absence of the owner popping in and pulling out sticks; but takes special care to make off as fast as possible.

"The female lays five, and sometimes six, eggs, of a pale blue colour; and raises two, and sometimes three brood in a season; the male taking the youngest under his particular care while the female is again sitting. Their principal food are insects, particularly large beetles, and other hard-shelled sorts that lurk among the old dead and decaying trees. Spiders are also a favourite repast with them. In Fall they occasionally regale themselves on the berries of the sour gum; and as winter approaches, on those of the red cedar, and on the fruit of a rough hairy vine that runs up and cleaves fast to the trunks of trees. Ripe persimmons is another of their favourite dishes; and many other fruits and seeds which I have found in their stomachs at that season, which, being no botanist, I am unable to particularize. They are frequently pestered with a species of tape-worm, some of which I have taken from their intestines of an extraordinary size, and in some cases in great numbers. Most other birds are also plagued with these vermin; but the Blue-bird seems more subject to them than any I know, except the Woodcock. An account of the different species of vermin, many of whom I doubt not are non-descripts, that infest the plumage and intestines of our birds, would of itself form an interesting publication; but as this belongs more properly to the entomologist, I shall only, in the course of this work, take notice of some of the most remarkable; and occasionally represent them in the same plate with those birds on which they are usually found.

"The usual spring and summersong of the Blue-bird is a soft, agreeable and oft-repeated warble, uttered with open quivering wings, and is extremely pleasing. In his motions and general character he has great resemblance to the Robin Red-breast of Britain; and had he the brown olive of that

bird, instead of his own blue, could scarcely be distinguished from him. Like him he is known to almost every child; and shews as much confidence in man by associating with him in summer, as the other by his familiarity in winter. He is also of a mild and peaceful disposition, seldom fighting or quarrelling with other birds. His society is courted by the inhabitants of the country, and few farmers neglect to provide for him in some suitable place, a snug little summer-house, ready fitted and rent free. For this he more than sufficiently repays them by the cheerfulness of his song, and the multitude of injurious insects which he daily destroys. Towards Fall, that is in the month of October, his song changes to a single plaintive note, as he passes over the yellow many-coloured woods; and its melancholy air recalls to our minds the approaching decay of the face of nature. Even after the trees are stript of their leaves, he still lingers over his native fields, as if loth to leave them. About the middle or end of November few or none of them are seen; but with every return of mild and open weather we hear his plaintive note amidst the fields, or in the air, seeming to deplore the devastations of winter. Indeed he appears scarcely ever totally to forsake us; but to follow fair weather through all its journeyings till the return of spring.

“Such are the mild and pleasing manners of the Blue-bird, and so universally is he esteemed, that I have often regretted that no pastoral muse has yet arisen in this western woody world, to do justice to his name, and endear him to us still more by the tenderness of verse, as has been done to his representative in Britain, the Robin Red-breast. A small acknowledgment of this kind I have to offer, which the reader I hope will excuse as a tribute to rural innocence.

“When winter's cold tempests and snows are no more,  
Green meadows and brown furrow'd fields re-appearing,  
The fishermen hauling their shad to the shore,  
And cloud-cleaving geese to the Lakes are a-steering;  
When first the lone butterfly flits on the wing;  
When red glow the maples, so fresh and so pleasing,  
O then comes the Blue-bird, the HERALD OF SPRING!  
And hails with his warblings the charms of the season.

“Then loud piping frogs make the marshes to ring;  
Then warm glows the sunshine, and fine is the weather;  
The blue woodland flowers just beginning to spring,  
And spicewood and sassafras budding together;



“ O then to your gardens, ye housewives repair !  
Your walks border up ; sow and plant at your leisure ;  
The Blue-bird will chant from his box such an air,  
That all your hard toils will seem truly a pleasure.

“ He flits through the orchard, he visits each tree,  
The red flowering peach and the apple's sweet blossoms ;  
He snaps up *destroyers* wherever they be,  
And seizes the caitiffs that lurk in their bosoms ;  
He drags the vile *grub* from the corn it devours ;  
The worms from their webs where they riot and welter ;  
His song and his services freely are ours,  
And all that he asks is, in summer, a shelter.

“ The ploughman is pleas'd when he gleans in his train,  
Now searching the furrows—now mounting to cheer him ;  
The gard'ner delights in his sweet simple strain,  
And leans on his spade to survey and to hear him ;  
The slow ling'ring schoolboys forget they'll be chid,  
While gazing intent as he warbles before 'em,  
In mantle of sky-blue, and bosom so red,  
That each little loiterer seems to adore him.

“ When all the gay scenes of the summer are o'er,  
And Autumn slow enters so silent and sallow,  
And millions of warblers, that charm'd us before,  
Have fled in the train of the sun-seeking swallow ;  
The Blue-bird, forsaken, yet true to his home,  
Still lingers, and looks for a milder to-morrow,  
Till forc'd by the horrors of winter to roam,  
He sings his adieu in a lone note of sorrow.

“ While spring's lovely season serene, dewy, warm,  
The green face of earth, and the pure blue of heav'n,  
Or love's native music have influence to charm,  
Or sympathy's glow to our feelings is giv'n,  
Still dear to each bosom the Blue-bird shall be ;  
His voice, like the thrillings of hope, is a treasure ;  
For, through bleakest storms if a calm he but see,  
He comes to remind us of sunshine and pleasure !

“ The Blue-bird, in summer and fall, is fond of frequent-  
ing open pasture fields ; and there perching on the stalks of  
the great *mullein*, to look out for passing insects. A whole

family of them are often seen, thus situated, as if receiving lessons of dexterity from their more expert parents, who can espy a beetle crawling among the grass, at a considerable distance; and after feeding on it, instantly resume their former position."

Before we take leave of this elegant work, we venture to make an observation concerning the price. We fear that twelve dollars for the present volume, and the like sum for the ensuing nine volumes, amounting to one hundred and twenty dollars for the set, will be too high for general circulation. This is the great difficulty with the most exquisite works in natural history. None but the rich can afford to buy them. We wish our author could by some means relieve his fellow-citizens from this inconvenience, and thereby unbar the gates of knowledge. When he reflects that a more extensive diffusion of his work, and of the information it contains will be the certain consequence of cheapening it, a reasonable expectation may be entertained that he will consult both his fame and his interest, by lowering the cost.

It seems also to us, that his chapters would be more methodical, if the matters they contain were arranged under distinct heads, as for example, *classification; description; migration; incubation; food; relation to man and to other animals, whether friendly or otherwise; musick; manners; domestication; economical uses*. By some such arrangement, all the information about birds could be disposed in an orderly manner under proper titles, instead of being offered in a diffuse and miscellaneous form.

It must be regretted that the ingenious and indefatigable author is not more extensively versed in Botany. Of so much importance is a good knowledge of plants, that histories of birds as well as of insects, must frequently be imperfect without it. We therefore recommend to him, a further acquaintance with the vegetable world. With moderate attention he will soon acquire the requisite knowledge of these objects. He will readily discern that the improvement of his Memoirs thereby, will amply reward him for his trouble. We suggest to him, the propriety of occasionally introducing into his drawing, an outline of the tree, or reptile affording nutriment to a bird. Such additions would not only embellish but illustrate the subject, without any increase of expence.

LEWIS EVANS's *general MAP of the middle British colonies, in America, and his Analysis of that Map; to which is added an account of THOMAS POWNAL's Topographical description.*

(Concluded from page 80.)

THE greater part of Connecticut is of this second stage, and is enriched by the fine interval lands between the chains, the greatest being along the Connecticut river, and near twenty miles wide. It is the courses of these chains of mountains and hills, that give direction to the several creeks and rivers. To the eastward of the first stage, some land is made by an accumulation of sand from the ocean, heaped together by the meeting of the recoil of the flood tide from the north-eastward, with another from the south-eastward, and forms near all the land of Cape Cod, to the eastward of the bottom of Massachusetts Bay. There are in this series, some few other gatherings of sand, but scarce worth the mentioning here. As for the outer part of *Long-Island*, it consists of both sand from the ocean and soil washed from the continent, thrown into this shape by the direction given the tides and currents by the adjacent coasts.

“ The land south-westward of Hudson's river is more regularly divided, and into a greater number of stages than the other. The first object worthy regard, in this part, is a reef or vein of rocks, of the talky or isinglassy kind, some two or three, or half a dozen miles broad; rising generally some small matter higher than the adjoining land, and extending from New-York city south-westerly by the lower Falls of Delaware, Schuylkill, Susquehanna, Gun Powder, Patapsco, Potomack, Rapahannock, James River, and Roanoak. This was the ancient maritime boundary of America, and forms a very regular curve. The land between this reef and the sea, and from the Navesink hills south-westward as far as this map extends, and probably to the extremity of Georgia, may be denominated the *Lower Plains*, and consists of soil washed down from above, and sand accumulated from the ocean. Where these plains are not penetrated by rivers, they are a white sea-sand, about twenty feet deep, and perfectly barren, as no mixture of soil helps to enrich them.— But the borders of the rivers, which descend from the uplands, are rendered fertile by the soil washed down with the floods, and mixed with the sand gathered from the sea. The substratum of sea mud, shells, and other foreign subjects, is



a perfect confirmation of this supposition. And hence it is, that for forty or fifty miles inland, and all the way from the Navesinks to Cape Florida, all is a perfect barren, where the wash from the upland has not enriched the borders of the rivers, or some ponds and defiles have not furnished proper support for the growth of white cedars. There is commonly a vein of clay seaward of the isinglassy reef, some three or four miles wide; which is a coarse fullers' earth, and excellently fitted, with a proper portion of loam, to make bricks of.

"From this reef of rocks, over which all the rivers fall, to that chain of broken hills called the South mountain, there is the distance of fifty, sixty, or seventy miles of very uneven ground, rising sensibly as you advance further inland and may be denominated the *upland*. This consists of veins of different kinds of soil and substrata, some scores of miles in length, and in some places overlaid with little ridges and chains of hills. The declivity of the whole gives great rapidity to the streams; and our violent gusts of rain have washed it all into gullies, and carried down the soil to enrich the borders of the rivers in the *lower plains*. These inequalities render half the country not easily capable of culture, and impoverish it where torn up with the slough, by daily washing away the richer mould that covers the surface.

"The *South* mountain is not in ridges like the *Endless* mountains, but in small broken steep, stony hills; nor does it run with so much regularity. In some places it gradually degenerates to nothing, not to appear again for some miles, and in others spreads several miles in breadth. Between the south mountain and the higher chain of the endless mountains, (often for distinction called the north mountain, and in some places the Kittatinni, and Pequilin), there is a valley of pretty even, good land, some eight, ten, or twenty miles wide, which is the most considerable quantity of valuable land that the English are possessed of, and runs through New-Jersey, Pennsylvania, Maryland, and Virginia. It has yet obtained no general name; but may properly enough be called *Piedmont*, from its situation. Besides conveniences always attending good land, this valley is every where enriched with limestone.

"The *Endless Mountains*, so called from a translation of the Indian name bearing that signification, come next in order. They are not confusedly scattered, and in lofty peaks overtopping one another, but stretch in long uniform ridges,

scarce half a mile perpendicular in any place above the intermediate vallies. Their name is expressive of their extent, though no doubt, not in a literal sense. In some places, as towards the Kaatskill, and the head of Roanoak, one would be induced to imagine he had found their end; but let him look a little on either side, and he will find them again spread in new branches, of no less extent than what first presented themselves. The *further* chain, or Alleghany ridge of mountains, keeps mostly on a parallel with the *Isinglassy* reef, and terminates in a rough stony piece of ground at the head of Roanoak and New river. The more easterly chains, as they run further southward, tend also more and more westerly; which is the reason that the *Upland* and *Piedmont* valleys are so much wider in Virginia, than farther northward. This south-westerly trending of the hither chains brings them to meet the Alleghany mountain, and in several places to intersect it, and form new series of mountains, as is the case, I believe, of the *Ouasioto*. When the several chains cross one another, or some small *spurs* \* spring out from the main ridges, the mountains are broken and spread in detached hills, and generally afford proper places to conduct roads through, but not very straight. It may be observed, that in laying out roads amongst mountains, it is best to choose the stony, and not the rocky ground; though from the fewness of the apparent rocks, the latter, to an inexperienced person, would be more promising; because, where a great deal of loose stones lie upon the edges of hills, and have not fallen from the impending rocks, it is a sure sign that, on the removal of them, loose earth lies underneath; for the rains washing away such, has been the cause of leaving so many stones bare.

"There are several chains of the *Endless mountains* which, had they come to my knowledge, might have filled several places which lie vacant in the map. But so far as we are acquainted with them, we observe that each chain consists of a particular kind of stone, and each different from the rest; and these differences continue for their whole extent, as far as I can learn; when I crossed them I was not apprehensive of this, and omitted enumerating the species. Some of the chains are single narrow ridges, as the Kittatinni, some spread two or three miles broad on the top; some steep on

\* " *Spurs* we call little ridges jetting out from the principal chains of mountains, and are of no long continuation.

one side, and extending with a long slope on the other ; and the steeper they are, the more rocky ; but they are every where woody where there is soil proper and sufficient to support the trees. Towards the further ridges north-eastward the mountains consist of rich land, and in some places are but as large broad banks, which take three or four miles to cross. In the way to Ohio, by Franks' town, after you are past the Alleghany mountain, the ground is rough in many places, and continues so to the river. Hereabouts the Laurel hill springs from the mountain, and continues, though not large, in a very regular chain, I believe, to the Ouasioto mountain : for though the Alleghany mountain is the most westerly, on the west branch of Susquehanna, it is far from being so back of Virginia.

" Except the further ridges, as just now mentioned, there is but little good land in the mountains ; to be sure not one tenth part is capable of culture, and what small matter is so, consists of extreme rich soil, in lawns, on the river edges, being so much rich mud subsided there, and commonly gathered above falls, formerly in drowned lands, and now drained, by the rivers wearing channels through the rocks.

" To the north-westward of the Endless mountain is a country of vast extent, and in a manner as high as the mountains themselves. To look at the abrupt termination of it, near the sea level, as is the case on the west side of Hudson's river, below Albany, it appears as a vast high mountain ; for the Kaatskills, though of more lofty stature than any other mountains in these parts of America, are but the continuation of the plains on the top, and the cliffs of them, in the front they present towards Kinderhook. These *upper plains*, are of extraordinary rich level land, and extend from the Mohawk river, through the country of the Confederates.

" Their termination northward is at a little distance from lake Ontario ; but what it is westward is not known, for those most extensive plains of Ohio are part of them ; which continue to widen as they extend further westward, even far beyond the Mississippi, and their boundary southward is a little chain of broken hills, about ten or fifteen miles south of the Ohio river. It is an odd phænomenon to observe how near the tide comes up Hudson's river to the head of Delaware and Susquehanna, when these two rivers are obliged to go so far to meet it in their own channels. The reason is, Delaware and Susquehanna have their heads in the *plains*, and Hudson's river has the tide at the foot of



them. The English are no where yet settled in these plains but towards the head of Susquehanna, and on the Mohawk river."

His facts and remarks on petrifications and the relicks of oceanic animals, and of vegetable productions so frequently found in our country, were originally taken from his journal. They are now reprinted from Pownall's Topographical description, &c. p. 29, with a view of giving our readers some further idea of the genius of Mr. Evans.

"The stones in all parts of these mountains are full of sea shells. It is not in the loose stones scattered through the vales that these shells abound only, but they are found at the tops of the mountains also. I saw some mixed with the rocky base of a high mountain; in Wishoochon creek I found a soft stone, five or six feet long, as full of all sorts of shells as if they were kneaded into a lump of brown clay: there was all the variety that could be imagined, and many that had never before come under my observation, many that I could not imagine to exist in nature as the shells of any animal, particularly a large escalop, with corbels as fine as those of cockles. I was almost disposed to pronounce this a *lusus naturæ*; but I have since found that sort of shell, and many other of the sorts which I saw there, in a bed of soil more than thirty feet under ground, in Virginia. The observations also which I had an opportunity of making at Moor's mill, near London town, in Maryland, showed me how ill imagined any such idea was. This place is not far from the sea side; the earth had been dug from an adjoining bank for a mill-dam; at the top I found the shells mixed with a loose sand; at three or four feet deep they were inclosed in a sandy clay, and at four or five feet deeper the clay was gradually hardened into a loose kind of stone, in which were mixed shells, many resembling the specimens which we had before observed in the mountains. This instance of the soil hardening by degrees from a loose sand to an indifferent stone in the space of eight or ten feet, where there could be no doubt but that the shells were genuine, and where the shells were actually of the same sort as those which I had observed in the mountains, convinced me that those shells of the mountains were real, and had been mixed with, and finally incrustated in the stones where they were found, by the same process as here appeared in its several gradations.

"Various systems and theories of the present earth have

been devised in order to account for this phenomenon. One system supposes that the whole of this continent, the highest mountains themselves, as they now appear, were formerly but one large plain, inclining with a considerable slant towards the sea; that this has been worn into its present appearance of ridges, with vales between them, by the rains of the heavens and waters of the earth, washing away the soil from the upper parts, and carrying it down seawards. That the soil thus carried down and lodged in various places, hath in a series of ages formed the lower plains of the Jersey, Pennsylvania, Maryland, Virginia, and the Carolinas. The most material arguments to support this hypothesis are, that the very tops of the mountains on the western side, though much higher than those bordering on the English scale, consist yet of extraordinary rich land; but that towards our side the soil of the very vales, as well as of the mountains, is thin and stony, and the rock almost bare, as if the earth had been swept away off from them. The downfall of waters from the melting of the snow, the rains, and the swollen springs, is such amongst the mountains, and the discharge from thence so great that the freshes on the Susquehanna river, where it is a mile broad, rise twenty feet, though they are discharged with a violent and precipitate current. These freshes carry down with them immense quantities of soil which they begin to drop as the velocity of their course slackens in gliding over the lower plains, and which they finally, lodge in bars and islands at the mouths of the rivers, where they meet the sea. Thus have been many very extensive countries formed at the mouths of all the great rivers in the world, and thus at the several mouths of the many great rivers ranging so near one another along this coast may that long continued range of flat country which is herein before called the *lower plains* be formed. And if we suppose this operation to have begun immediately at the carrying off of the waters of the deluge, when the earth was in a state of fluidity, and to have continued in operation ever since, the effects will not appear more than natural. This hypothesis accounts for all the appearances which are observed, and all

\* "I will here transcribe an extract from a letter of Monsieur Vaudreuil, the Governor of Louisiana, dated September 28, 1752. There is infinite difficulty, says he, in settling towards the mouth of the river Mississippi, on account of the immense expense in banking against the inundations of the sea and land floods. I am against settling it as yet; and for waiting until the ground be more and more raised by the accretion of soil; as it hath been *three feet* in the space of fifteen years.

the peculiarities which are found in the lower plains of America ; such as the nature of the different layers or strata of which they consist ; for the sea shells and fish bones are found at thirty and forty feet deep, and probably deeper, if examined for the various logs, and especially for the cedar swamps and pine bogs, which are perfect mines of timber.

“ But we must have recourse to some other explanation in order to account for the situation of the shells on the tops of the mountains.

“ It is easy to show the earth and sea *may* assume one another's places, but positively to assert *how that hath actually happened* in times past, is hazardous ; we know what an immense body of water is contained in the great lakes at the top of the country, and that this is dammed and held up by ridges of rocks. Let us suppose these ridges broken down by any natural accident, or that in a long course of ages a passage may be worn through them, the space occupied by the water would be drained. This part of America, disburthened of such a load of waters, would of course rise, as the immediate effect of the shifting of the centre of gravity in the globe at once or by degrees, much or little, accordingly as the operation of such event had effect on that centre. The directly opposite part of the earth would, as part of the same effect, sink and become depressed, and liable to be deluged, without any apparent reason discoverable in those parts for such a change. There is no doubt but that many such accidents have happened in the world before it became settled in its present condition and state. That there have happened some such accidents, by which the general body of the land of America hath been raised, we have reason to collect from the Chinese Chorography, called Quang-yn-ki, which describes Tshaossanas, in Corea, which is now divided from it by the gulf Leao Tong, where the sea has encroached so much, that the mountain Kiesheshang, which was formerly part of the continent, is now near five hundred leagues off at sea. If the land of China became thus much depressed by the change of the centre of gravity of the earth, those parts of America which lie nearly in an opposite meridian would be equally raised. No doubt many partial deluges have happened from such causes ; the reason of which, for want of knowledge in what had passed on the opposite side of the globe, could never be explained. Some such changes may have come gradually, and advanced by such slow degrees,



as that in a period of a few ages would not be perceptible ; history, therefore, could take no notice of them.

“ We know from observation how much higher the Atlantic ocean is than the Pacific, and how it is piled up against the American coast on the western shore of the gulf of Mexico, driven thither by the trade winds, and attraction of the moon and sun. Let us suppose it possible that a passage might be forced through the Isthmus of Darien, or some other part of America between the tropics; these waters then would pour down from this height, and be discharged through this passage, instead of running back through the gulf of Florida ; the height of the Atlantic would be lower between the tropics, and the level of the Pacific ocean would rise ; the centre of gravity of the earth would shift, and there would be few places on the earth but what would perceive the effect, although none would be able to conceive the cause that did not know the particular event of this passage being opened.” “ Suppose now that the Bahama and Caribbee islands were once (which they certainly appear to be), an isthmus, (like that of Darien) the continuation of the Appalachian mountains and the Al-a-Bah'ma country ; that what is now the gulf of Mexico, was a most extensive plain, and that some such accident as is above supposed did actually happen by the breaking of the sea through this chain of land into this plain, now the great gulf, that part of the globe actually becoming depressed, the opposite point would be raised : “ I have mentioned,” says Evans, “ these different systems as they occurred to me on viewing the various phenomena which meet our eye in the mountains, for the information of those who are curious in inquiring into the system of our world ; but I have neither pursued the investigation with that attention, nor explained them with that closeness of reasoning which I might have done had I been interested about them ; I shall therefore beg the reader to make choice of that hypothesis which he likes best, and thinks most probable ; for my own part, I can conclude on neither singly.”

As to Pownall's performance, we may say of it, that it is one of the most respectable documents we possess, on the the geography and topography of the regions about which it treats. For he improved Evans's Map by the addition of such discoveries and surveys as had been made during the twenty one years which elapsed between 1755 and 1776, and his explanation of it may be considered as an extensive and

minute commentary upon his author's text. To this he paid so much respect, that he incorporated almost the whole analysis into his own work, carefully noting, however, by inverted commas, all the quotations he makes, and giving Mr. E. full credit for them. After a preface and some introductory observations, Gov. P. divides his description into three sections and an appendix. In the first of these, he gives a general delineation of the appearance of the country in its natural state, especially of its mountains, rivers, and vegetables. In the second, he more particularly describes the eastern division of the country, or that part which lies eastward of the river Hudson and Lake Champlain. In this, the mountains run from the confines of Canada in directions almost due north and south, nearly parallel with the courses of Hudson and Connecticut rivers, ending in steep ridges or bluffs toward Long Island sound. In the third, he offers his remarks on the western division of the continental territory, or that part which lies W. and S. W. of the Hudson. Within this extensive region, the mountains proceed in a course from N. E. to S. W. beginning at the very high tract of land, situated near the angle formed by the Mohawk and the Hudson, trending in uniform and parallel ranges, and terminating in Georgia, the Mississippi territory, and Louisiana. The appendix contains two extracts from Captain Anthony Van Schaick's journal, concerning the ground between Crown Point and Otter Creek, on Lake Champlain; Capt. Hobbs's account of the way from No. 4. a little fortified post on Connecticut river in New Hampshire, to the mouth of Otter creek, 1756; Captain Gordon's narrative of occurrences on a voyage from Fort Pitt, to the Illinois in 1766; Mr. Lewis Evans's expedition from Philadelphia, by the route of Sunbury and Onondago to Oswego; and Christopher Gist's journey from Old Town on Potomack, 1750, down the Ohio to the vicinity of the Falls, and thence to Roanoke, in North Carolina. As specimens of Gov. P.'s manner of writing, we might select the striking passages on the fruits of the forests, the colouring of leaves in autumn, and the external configuration of the country, but they would occupy more room than we have to spare.

We learn from it, that the word *Connecticut* signified in the Indian language "The long River;" and that *Mas-Tchuseag*, or as the Tartars spell it, *Mas-Tchudi*, are the radical words whence "Massachusetts" is derived, which signifies "the country on this side of the Hills."

But having done thus much to preserve the remembrance of these meritorious performances, and to do respect to the labours of Evans and Pownall, we trust that such of our readers, as are curious in American geography, will not fail, now that the authorities are opened before them, to search further for themselves.

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*Boston Medical Police.* 8vo. pp. 12, Boston, Snelling and Simons, 1808.

THE relation in which physicians are placed in society, with respect to one another, is extremely apt to produce jealousy, interference and collision. They are often obliged to form opinions, in the exercise of their profession, on doubtful and obscure subjects ; and these opinions must be acted upon, on occasions and under circumstances of high responsibility. The difficulty of framing correct opinions, concerning the origin, nature and treatment of diseases, will readily account for variance and contrariety in them ; nor is it less obvious that their application to practical use will be likely to produce a close and obstinate adherence to them, on the part of those by whom they are formed and declared. The pride of opinion operates on most minds with great force. But when the emoluments of professional business are involved in the consequences, it becomes much more difficult to recede from ground once formally and decisively taken. Reputation to the medical practitioner, is the medium of emolument ; the correctness of his opinions and practice constitutes this reputation ; no wonder then that he defends and maintains the principles which regulate his views and treatment of diseases by the most strenuous efforts. This he deems of the more importance, if he be still young, and unsettled in the confidence of the community. The duty of acknowledging and renouncing errors, of avowing and publishing mistakes in professional business, is seldom performed but by such as feel secure of being deeply intrenched in the respect and consideration of the community. While self-love and self-interest continue to preserve their hold on the human mind, this cannot be expected to be otherwise. Hence we may perceive at a glance the thou-



sand sources of suspicion, disagreement and animosity, which are every where to be found among practitioners of medicine.

But the usefulness and dignity of the profession are deeply concerned in allaying and suppressing these unpleasant tendencies. It is therefore highly worthy of the most influential and venerable practitioners to devote their attention to this object.

The respectable physicians of Boston, equally distinguished for their learning and urbanity, have set a good example in the work before us. They have chiefly adopted the principles and sentiments of Dr. Percival, as displayed at large in his "*Medical Ethics*;" a work which, with all the rest from his pen, does much honour to the heart as well as the understanding of the author. We consider the matter of this publication as so appropriate and excellent, that the following quotation includes nearly the whole.

### CONSULTATIONS.

"Consultations should be encouraged in difficult and protracted cases, as they give rise to confidence, energy, and more enlarged views in practice. On such occasions, no rivalry or jealousy should be indulged; candour, justice and all due respect should be exercised towards the physician who first attended; and as *he* may be presumed to be best acquainted with the patient and his family, he should deliver all the medical directions as agreed upon. It should be the province, however, of the senior consulting Physician to propose the necessary questions to the sick.

"The consulting Physician is never to visit without the attending one, unless by the desire of the latter, or when, as in sudden emergency, he is not to be found. No discussion of the case should take place before the patient or his friends; and no prognostications should be delivered, which were not the result of previous deliberation and concurrence. Theoretical debates, indeed, should generally be avoided in consultation, as occasioning perplexity and loss of time; for there may be much diversity of opinion on speculative points, with perfect agreement on those modes of practice, which are founded, not on hypothesis, but on experience and observation. Physicians in consultation, whatever may be their private resentments or opinions of one another, should divest themselves of all partialities, and think of nothing but

what will most effectually contribute to the relief of those under their care.

“If a physician cannot lay his hand to his heart and say, that his mind is perfectly open to conviction, from whatever quarter it may come, he should in honour decline the consultation.

“All discussions and debates in consultations, are to be held secret and confidential.

“Many advantages may arise from two consulting together, who are men of candour, and have mutual confidence in each other's honour. A remedy may occur to one, which did not to another, and a physician may want resolution or a confidence in his own opinion, to prescribe a powerful, but precarious remedy, on which, however, the life of his patient may depend; in this case, a concurrent opinion may fix his own. But when such mutual confidence is wanting, a consultation had better be declined, especially if there is reason to believe, that sentiments delivered with openness, are to be communicated abroad, or to the family concerned; and if, in consequence of this, either gentleman is to be made responsible for the event.

“The utmost punctuality should be observed in consultation visits; and to avoid loss of time, it will be expedient to establish the space of fifteen minutes, as an allowance for delay, after which, the meeting might be considered as postponed for a new appointment.

### INTERFERENCES.

“Medicine is a liberal profession; the practitioners are, or ought to be, men of education; and their expectations of business and employment should be founded on their degrees of qualification, not on artifice and insinuation. A certain undefinable species of assiduities and attentions, therefore, to families usually employing another, is to be considered as beneath the dignity of a regular practitioner, and as making a mere trade of a learned profession; and all officious interferences in cases of sickness in such families, evince a meanness of disposition, unbecoming the character of a Physician or a Gentleman. No meddling inquiries should be made concerning them, nor hints given relative to their nature and treatment, nor any selfish conduct pursued, that may, directly or indirectly, tend to weaken confidence in the Physicians or Surgeons, who have the care of them.

“When a physician is called to a patient, who has been under the care of another gentleman of the faculty, before any examination of the case, he should ascertain, whether that gentleman has discontinued his visits, and whether the patient considers himself as under his care; in which case, he is not to assume the charge of the patient, nor to give his advice, (excepting in instances of sudden attacks) without a regular consultation; and if such previously attending gentleman has been dismissed, or has voluntarily relinquished the patient, his practice should be treated with candour, and justified so far as probity and truth will permit; for the want of success in the primary treatment of the disorder, is no impeachment of professional skill and knowledge.

“It frequently happens, that a Physician, in incidental communications with the patients of others, or with their friends, may have their cases stated to him in so direct a manner, as not to admit of his declining to pay attention to them. Under such circumstances, his observations should be delivered with the most delicate propriety and reserve. He should not interfere in the curative plans pursued; and should even recommend a steady adherence to them, if they appear to merit approbation.

#### DIFFERENCES OF PHYSICIANS.

“The differences of Physicians, when they end in appeals to the publick, generally hurt the contending parties; but, what is of more consequence, they discredit the profession, and expose the faculty itself to contempt and ridicule. Whenever such differences occur, as may affect the honour and dignity of the profession, and cannot immediately be terminated, or do not come under the character of violation of the special rules of the association otherwise provided for, they should be referred to the arbitration of a sufficient number of members of the association, according to the nature of the dispute; but, neither the subject matter of such references, nor the adjudication, should, if it can be avoided, be communicated to the publick, as they may be personally injurious to the individuals concerned, and can hardly fail to hurt the general credit of the faculty.



## DISCOURAGEMENT OF QUACKERY.

"The use of Quack medicines should be discouraged by the faculty, as disgraceful to the profession, injurious to health, and often destructive even of life. No Physician or Surgeon, therefore, should dispense a secret nostrum, whether it be his invention or exclusive property; for if it is of real efficacy the concealment of it is inconsistent with beneficence, and professional liberality; and, if mystery alone give it value and importance, such craft implies, either disgraceful ignorance, or fraudulent avarice.

## CONDUCT FOR THE SUPPORT OF THE MEDICAL CHARACTER.

"The *esprit du corps* is a principle of action, founded in human nature, and, when duly regulated, is both rational and laudable. Every man, who enters into a fraternity, engages, by a tacit compact, not only to submit to the laws, but to promote the honour and interest of the association, so far as they are consistent with morality and the general good of mankind. A physician, therefore, should cautiously guard against whatever may injure the general respectability of the profession, and should avoid all contumelious representations of the faculty at large, all general charges against their selfishness or improbity, or the indulgence of an affected or jocular scepticism, concerning the efficacy and utility of the healing art.

## FEES.

"General rules are adopted by the faculty in every town, relative to the pecuniary acknowledgments of their patients; and it should be deemed a point of honour to adhere to them; and every deviation from, or evasion of these rules, should be considered as meriting the indignation and contempt of the fraternity.

"Gratuitous services to the poor, are by no means prohibited; the characteristical beneficence of the profession, is inconsistent with sordid views and avaricious rapacity. The poor of every description should be the objects of our peculiar care. Dr. Boerhaave used to say, they were his best patients, because God was their paymaster.

"It is obvious also, that an average fee, as suited to the

general rank of patients, must be an inadequate compensation from the rich, (who often require attendance not absolutely necessary) and yet too large to be expected from that class of citizens, who would feel a reluctance in calling for assistance, without making some decent and satisfactory remuneration.

### EXEMPTION FROM CHARGES.

“The clergymen of the town, and all members of the medical profession, together with their families, should be attended gratuitously ; but visits should not be obtruded officiously, as such civility may give rise to embarrassments, or interfere with that choice on which confidence depends.

“But distant members of the faculty, when they request attendance, should be expected to defray the charges of travelling : and such of the clergy from abroad, as are qualified by their fortunes or incomes, to make a reasonable remuneration for medical attendance, are not more privileged than any other order of patients.

“Omission to charge, on account of the wealthy circumstances of the physician, are an injury to the profession, as it is defrauding, in a degree, the common funds for its support, when fees are dispensed with, which might justly be claimed.

### VICARIOUS OFFICES.

“Whenever a Physician officiates for another by his desire, in consequence of sickness or absence, if for a short time only, the attendance should be performed gratuitously as to the physician, and with the utmost delicacy towards the professional character of the gentleman previously connected with the patient.

### SENIORITY.

“A regular and academical education furnishes the only presumptive evidence of professional ability, and is so honourable and beneficial, that it gives a just claim to pre-eminence among Physicians at large, in proportion to the degree in which it may be enjoyed and improved. Nevertheless, as industry and talents may furnish exceptions to this general rule, and this method may be liable to difficulties, in

the application, seniority, among practitioners of this town, should be determined by the period of public and acknowledged practice as a Physician or Surgeon in the same. This arrangement being clear and obvious, is adapted to remove all grounds of dispute amongst medical gentlemen : and it secures the regular continuance of the established order of precedency, which might otherwise be subject to troublesome interruptions, by new settlers, perhaps not long stationary in the place."



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## MEDICAL & PHILOSOPHICAL NEWS.

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### DOMESTIC.

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#### *Inventions by Robert Fulton, Esq.*

**F**IRST, a mill for sawing and polishing marble, for which the London Society for encouraging Useful Arts and Manufactures, gave him the Silver medal in 1794.

*Second*, a system of Canal Navigation which he published in London, in 1796. His principle is to have small canals and boats of 8 tons, which are to mount or descend to the different levels of the canal, on inclined planes instead of locks; while the boats are drawn on the canal, 6 or 8 of them are chained together; when they arrive at the inclined plane, they are separated and pass singly. As this mode will very much diminish the expence of constructing canals, Mr. Fulton has given a flattering prospect of our having canals of this kind to pass through the interior and mountainous parts of these States. A variety of mechanical combinations are delineated in his book, for working the inclined planes, for passing valleys, and economising water, which, on the old plan, would be expended in locks, but which, by his method may be used for irrigating the grounds in the neighbourhood of the canals, giving verdure and abundance to thousands of acres, which would otherwise remain sun-burnt and unproductive. The work concludes with a tonnage table, or systematic plan of transport, which has in some degree been republished in Mr. Fulton's letter to the Secretary of the Treasury, on canal navigation. He there shews, that to carry a ton weight 300 miles on our usual roads, will cost 100 dollars. On good turnpike paying tolls, it will cost 42 dollars. If the government should make the roads out of the surplus revenue, and have no tolls, the cost will be 35 dollars. Were the government to make canals without tolls, except sufficient to repair them; the expence of carrying one ton 300 miles would be 3 dollars.

But striking as this comparison is, says Mr. F. I will still extend it; the merchandise which can bear the expence of

carriage on our present roads to Pittsburgh, Kentucky, Tennessee, or any other distance of 300 miles, and which for that distance, pays 100 dollars a ton, could be boated, that is carried on canals, ten thousand miles for that sum.\*

*Third*, a machine for making Ropes. This engine is to be put in motion by a water wheel. It can stand in a room about 40 feet square; the rope yarns are put into it on spools, and any sized cordage, from a *cod line* to a *hawser*, can be made on it by the attention of one man. It is finished on the machine ready coiled, and has only to be removed to the ware-house. A rope mill of this kind is now building at Baltimore, by Mr. Nathaniel Cutting, who has made many ingenious improvements on the spinning of rope yarn, by machinery.

*Fourth Invention.* A boat to navigate under water. In this machine Mr. Fulton and 3 persons continued under water one hour, at Havre de Grace in France. He rowed about, while under water, in every direction, and steered by means of a compass. It had a mainsail and gib, like a common sloop. When pursued, the mast and sails could be taken in, and the boat dive under water in one minute, continue under water three hours, and rise to renew the air 3 miles from the place she went down; the air could be renewed in one minute, when the boat, diving, could continue under water again for 3 hours. While making his experiments on this vessel, Mr. F. made a voyage in her from Havre to La Hogue, a distance of 18 leagues in the boisterous weather of the autumnal equinox, and found her to act perfectly well in open sea. By late improvements on this vessel, and the manner of obtaining air, 5 men may continue under water for 6 hours, and rise 15 miles from the place they went down. The object of this invention, was to find a certain mode of fixing an engine, which Mr. F. calls a *torpedo*, to the bottom of a ship of war, for the purpose of blowing her up; but after much labour and expence, he has abandoned this plan

\* The object of this invention is to reduce the expence of transportation to the lowest possible rate, and give a facility to bring down the produce of our remote interior to the sea ports, taking back in exchange the various merchandise. Such a system of easy transport would open infinite new scenes of lucrative industry, greatly increase the national resources, riches and strength, and bind the States together in the strongest bonds of confederation, those of interest, and the habits of easy intercourse.

for fixing his torpedo. He has however fortunately discovered a method, which is certain, and infinitely more simple.

The *Torpedo*, which is his *fifth* invention, is a copper case, which will contain from 50 to 100 pounds of powder. To it is fixed a gun-lock in a brass box, which lock strikes fire by means of a piece of clock-work, which can be set to one or more minutes. The Torpedo thus prepared is made fast to a rope from 60 to 80 feet long; at the other end of the rope is a gun harpoon; the harpoon being fired into the bow of an enemy's vessel, the Torpedo is thrown over board, and the action of the vessel through the water draws it under her bottom, where the clock-work running out its time, explosion takes place, and the vessel will either be blown up or her bottom so shattered as to render it impossible for the pumps to save her. This being the principle of the Torpedo, it is designed to make the attack with good and well manned row boats, each boat to have its harpoon and torpedo complete: 30 such boats to make the attack on one ship of war, 10 to attack on her larboard, and 10 on her starboard bow: this will divide the enemy's fire, and out of the number of harpoons some will take effect, in which case the vessel must from necessity be destroyed. This invention, and the practice of it, is yet in its infancy. Men in general will have doubts about its practicability or political consequences, as is the case with all new discoveries, until ocular demonstration compels belief. Mr. Fulton has laboured with much zeal to bring this invention to a useful state of perfection. He now confidently asserts, that his theory is right, and that practice only is wanting to establish a system of attack, which in its consequences must annihilate military marines, and give that liberty to the seas which is so much desired by every friend to humanity, and America; and who can say, that he is not right in this prediction? Did not the invention of gunpowder totally change the art of war? And may it not again be changed? Out of the invention of gunpowder, military marines, those floating and destructive fortifications, have grown, which now rob us of our neutral rights. By the right application of gunpowder, may they not be destroyed? The object is a grand one, and merits every exertion of mind to effect it; and we should hope that it will be effected. Indeed, the prospect of success is flattering; for do not inventions less plausible in their commencement, by perseverance become permanent and useful establishments? This



ty years have been spent by ingenious men in endeavours to make a useful Steam-Boat. All failed, and the project had lost every credit in the public mind ; yet the Steam-boat has succeeded to the admiration of every friend to the useful arts, and is now looked up to, as a work of immense public benefit. May we not then, without presumption, hope that the same industry and perseverance which have penetrated into the complicated principles of the Steam-boat, and organized them into utility, may also persevere to the establishment of a principle, which, driving military marines from the ocean, will give us every freedom of commerce which can be desired, remove every cause of dispute between us and European nations, secure to us lasting peace, and direct all our resources and energies to humane and useful pursuits.\*

*Sixth Invention.* The Steam-Boat.—This has been completed at New-York. A boat of 150 feet long and 16 broad, was constructed by Messrs. Brown. This is put in motion by one of Watt and Boulton's Steam-Engines. The boat is propelled by the revolution of two wheels, corresponding with each other, and driving her through the water. This noble invention, though attempted in vain by so many others, has perfectly succeeded in Mr. F.'s hands ; and no better proof can be given of the excellence of the vessel thus constructed, than that she outstrips the mail, and all other carriages by land, and makes better voyages than any other packets or boats, which navigate the Hudson, between New-York and Albany.

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*The Hooping-Cough cured by Vaccination.*

That experienced and able physician John Archer, M. D. of Hartford county, in Maryland, has recommended Vaccination as a remedy for Pertussis, in the following letter to Dr. Mitchill, dated November 15, 1808.

“ You may recollect that about 3 or 4 years ago, I men-

\* Admitting that any invention can be effected, which will destroy military marines, and consequently give freedom to the seas ; there is a fine field for eloquence in displaying the immense advantages which would result from such a revolution in the affairs of man, from military and barbarous labours to civil improvements.

tioned to you, that it was my opinion that vaccination would cure the *Tussis Convulsiva*; that I had made one experiment, and that it succeeded fully to my expectations. I mentioned the case to several physicians, and requested their making a trial of its effects; when they should have any patients with *Hooping-cough*. The beneficial effects of vaccination above mentioned, determined me in every instance that occurred of the *hooping-cough* to vaccinate. I therefore have vaccinated six or eight patients that had the *hooping-cough*, and in every case it has succeeded in curing this most distressing disease.

The *hooping-cough* does not come to its height in less than six weeks from its commencement, and then, when a favourable termination is expected, the declension of the disease is gradual, and it does not terminate in less than six weeks more. To arrest this afflicting disorder in its progress, I would recommend vaccination in the second or third week of the *hooping cough*, *i. e.* when the symptoms of the *hooping cough* are fully ascertained, then to vaccinate. Should the convulsive cough be violent, I should immediately vaccinate; being well assured that the distressing symptoms of the *hooping-cough* are checked by vaccine disease. The termination of the vaccine disease will be the termination of the *hooping-cough*; that is, as soon as the vaccinated part loses the efflorescence, and the scab begins to dry and becomes of a blueish or brownish colour, there will then be an evident change in the *hooping-cough* for the better, and the severe symptoms will cease.

Thus of two formidable diseases, to which the human race are liable, the small pox and *hooping-cough*, the first is prevented and the latter is cured.

These observations I conceived it my duty to communicate. You will dispose of them as may be most agreeable to you."

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*Shower of Stones in Italy.*

*Extract from a communication of D. B. Warden, Esq. at Paris, to Dr. Mitchell, dated, Paris, July 30, 1808.*

"Mr. Guidotti, Professor of Chemistry and Natural History in the University of Parma, has published the result of his researches concerning the *ærolithos*, or stones that have

descended from the atmosphere. The following is an abstract of his memoir on the last air-stones which fell in the department of Faro, within the limits of the ancient states of Parma.

"On the 19th of April, 1808, at one o'clock in the afternoon, the sky being serene, excepting a few ash-coloured clouds, the inhabitants of the villages of Cella, Pieve and Varano, heard in the air two loud reports like those of cannon, which were followed by other reports very near each other, very much resembling the thumping of boxes. This noise lasted longer than a minute, and was then succeeded by a dull sound, during the continuance of which, stones fell to the surface of the earth, into which they penetrated to the depth of several decimetres.

"This rapid fall of stones produced a whistling sound, such as would be effected by any other stone whirled from a sling. They were burning hot.

"The physical characters, and component parts of one of these stones picked up at Pieve, were as follow; to wit, its figure approached an oblong square, with its angles rounded off; its surface was uneven and cavernous; its outer coat was of a blackish brown, vitrified, continued over the whole stone, and striking fire with steel; its fracture was irregular and grained; the fragments of an indeterminate figure and almost scaly; the inside was of an ash colour bestrewed with small points almost black, and with small metallic spots; of the latter, some were lamellar, of a whitish yellow, and others globular, compact, and of tin colour; this globular substance has a decided action upon the magnetic needle; in like manner the whole stone in mass attracts the magnet; its interior parts are not very compact, for it may be easily scratched with any iron tool; it adheres to the tongue; its absolute weight was about two pounds Piedmont. Its specific gravity was between 3,39 and 3,46, water being the unit.

The chemical analysis made by Professor Guidotti, of this meteoric stone, proves that it is composed of silicious earth 50 parts, oxyd of iron 28, magnesia 19, oxyd of nickel 2,50, oxyd of manganese 1,50, oxyd of chrome 1, and of sulphur 4, making in the whole 106. This small augmentation of weight in the aggregate of the materials in this analysis is owing to the addition of oxygen to the iron during the operation; for it naturally exists in the ærolith, in a state more or less metallic.

"Mr. Guidotti is of opinion that these productions are



formed in the atmosphere, from the earthy and metallic substances which are incessantly floating there. They may, he thinks, be partly conveyed there by the fluids with which we are acquainted, and partly in all probability by others, whose discovery is reserved for future generations."

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*Extract of a Communication to Samuel L. Mitchill, Professor, &c. on the Facts brought to light by the decomposition of the fixed Alkalies, and on the new Metals they are found to contain: extracted from experiments made by Messrs. Gay Lussac and Thenard. [Continued from p. 86.]*

*On the Metal of Potash.*

When this metal is in contact with ammoniacal gas in a tube well dried and over mercury, and thus melted, it disappears by degrees, and is transformed into a grey greenish substance, which is very fusible. The ammoniac itself almost wholly disappears, and is replaced in the tube by a volume of hydrogen gas, equal to about two thirds of the ammoniacal gas employed. If in the same tube of glass, filled with mercury, we heat the grey greenish matter which is attached to the upper part in the form of a plate, we can take from it, at least, three fifths of the ammoniac absorbed; to wit, two fifths of the ammoniac not decomposed, and one fifth of ammoniac decomposed, or of which the elements have been put in a state of freedom by fire. If afterwards we put the grey greenish substance thus heated in some drops of water, we disengage very sensibly the other two fifths of ammoniac which is absorbed: no other gas is disengaged, and that which remains is very caustic potash. In fine, if we take the ammoniacal gas disengaged by the fire from the grey greenish substance, and if it be employed in the treatment of this new metal, there is again a formation of a grey greenish substance, similar to the preceding absorption of ammoniacal gas, and the presence of a great quantity of hydrogen gas. This experiment may still be repeated with ammoniac taken from this second grey substance, and we shall always obtain the phenomena, so that by this means with a given quantity of ammoniac we obtain more than its volume of hydrogen gas.

Let us now enquire whence proceeds this hydrogen gas? Does it originate from the decomposed ammoniac? But

that is impossible, since we take from it all the ammoniac employed. Besides, we have seen that the metal cannot combine with azotic gas, and that on the contrary it combines so well with hydrogen gas, that we can by this means, operate the separation of those two gases. Besides, to all these proofs, we may add that by treating equal quantities of the metal by water and ammoniacal gas, we obtain absolutely from one and the other, the same quantity of hydrogen gas.

Thus this hydrogen cannot proceed but from the water which might be supposed to exist in the ammoniacal gas, or from the metal itself; but according to the experiments of the younger Bertholet, it is proved that ammoniacal gas does not sensibly contain water, and we obtain so much hydrogen, that to suppose that it may be owing to the water of ammoniac, it would be necessary to admit that this ammoniac contains more than its weight of water, which is absurd. The hydrogen gas then proceeds from the metal, and when we have separated from it this gas, this metal is transformed into an alkali: therefore this metal appears to be a combination of alkali and hydrogen.

The above was read at the National Institute the 21st of June.

#### *On the Metal of Soda.*

This metal has a bright metallic lustre; its colour is between that of lead and tin; it is ductile, and so soft that it may be moulded like wax. Its combustibility is less than that of the metal of potash. At a temperature from 10 to 15 degrees, it does not inflame with air, nor when it is thrown into water; but it moves on the surface of the liquid, turns with an extraordinary rapidity, and assumes a round form like a pearl. It disengages almost twice as much hydrogen as the same quantity of potash: it acquires a considerable degree of warmth; it decrepitates at the close of the decomposition, and is transformed into soda. When pure it melts at 90 degrees only, whilst that of potash enters into fusion at 58 degrees of the centigrade thermometer; but when we combine these metals together in different proportions, the mixtures are much more fusible than the pure metals. Three parts of the metal of soda, and one part of the metal of potash form a mixture which is fusible at zero, which loses its fusibility in diminishing the quantity of the

metal of potash, and which, on the contrary, is more fusible in augmenting to a certain degree this quantity. This mixture is even liquid at zero, when it contains ten times as much of the metal of potash as of soda, and it presents even then a remarkable property, that of being lighter than the oil of Naptha. In all cases, whatever be the quantity of metals that constitute it, if it melts at zero, it becomes brittle when it is solidified by cooling. These different mixtures explain why we at first believed the metal of soda to be liquid. We considered the soda which we employed as very pure, because we purchased it in a highly accredited laboratory, but it contained a small portion of potash. Perhaps this is the reason, why the metal of the liquid potash was obtained ; for we are very certain that ours is pure and contains only potash and hydrogen. It is nevertheless possible that this liquidity proceeds from a greater, or less quantity of hydrogen it contains ; what makes it probable is, that Davy, with the galvanic pile, obtained this metal fusible, at 4 degrees (centig. therm.)

Translated from the Bulletin of the Philomathic Society.

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*Observations on the Weather and diseases in the Autumn of 1808, in the City of New-York.—BY DR. RICKETSON.*

Nothing very uncommon appeared, either in the Weather or Diseases of the late Autumn ; except that the air, during a considerable part of the first fall month, was warmer and more sultry, than that of the preceding. Even so late as the 19th, the Mercury in my Thermometer, (Fahrenheit's Scale) stood at 82, about noon ; and at 81 in the evening ; but in the night of the 20th, after a rain, the weather changed suddenly, and became cool ; and was soon followed by frost, as is usual about the time of the autumnal equinox : a change which ought to advertise all to clothe warmer ; and especially valetudinarians, to put on flannel next the skin.

The two last autumnal months exhibited nothing very unusual, being attended with frequent alternations of frost and rain. In the last, was a course of dry smoky weather, long known in this country by the name of "Indian summer."

There was very little snow here, being merely a sleet, once or twice ; though accounts say, there has been considerable snow to the northward.



The diseases of the summer, mentioned in my observations for that season, continued to be the most common sickness in the first autumnal month, which was unusually healthy. Whenever the Typhus Icteroides has prevailed, it has generally appeared before, or in this month; but I have not seen nor heard of any decided cases of it in this city, either in the summer or autumn of the present year.

During the second, no great difference of sickness occurred, except the Scarlatina, which appeared in some instances; but there was an affection of the throat in many children, that I did not judge to be a proper Scarlet Fever.

In the third, there was an increase of complaints that usually prevail at this variable season, such as colds, coughs, rheumatisms, &c. There were a few cases that resembled the Influenza, and were called so by some.

Throughout this month there occurred frequent instances of Remitting and Typhus Fevers; but not attended with any unusual symptoms, malignancy, or mortality. Some, however, particularly of the latter kind, proved fatal. A case of Intermittent terminated in a similar manner. Is the practice lately recommended by Dr. Hamilton, of employing purgatives assiduously in Typhus, to be encouraged?

Fevers of different kinds were equally or more prevalent, during the summer and autumn, in Greenwich and the environs of the city, than in the centre of it.

The chicken pox, mumps, and chin cough, are still alive, in and about the city; and some cases of the last very severe. Several deaths by the small pox have been weekly recorded, for some time past, to the discredit of the faculty, the public, and the police.

I have not inoculated any with small pox, since the spring of 1802; except as a test after vaccination; in none of which did I succeed in communicating the former; but there are physicians who still inoculate with it, when subjects present, which tends to keep it alive.

It is therefore suggested, whether some renewed exertions and regulations, either by the faculty, or the police, or both, ought not to be made; or an institution formed for the purpose of encouraging the one, and discouraging the other?

11th month 30th, 1808.

*The following cases have been obligingly communicated to the editors, by Jacob V. Brower, M. D. of this city.*

*Singular case of Hemorrhage.*

Mrs. M. F. fourteen months past, sent for me in great haste to stop an hemorrhage from her leg. When I arrived at her house, she was standing upright, and a stream of blood flowing to the distance of about four feet from the place in which she stood. The blood came out by jerks, and was of a bright red colour. I put my thumb on the orifice, which was large enough to admit, with ease, the end of a common sized silver probe, and ordered a compress and bandage to be prepared; in the mean time, the following circumstances of her case were related. Her leg had been perfectly sound for a few years past, and she never had any ailment in it, except what arose from cuts and bruises. For the space of a few days immediately preceding this accident, there had been occasionally an itching in, and about the spot from which the blood gushed; and that sensation was allayed by rubbing and scratching with her nails and fingers. There was not either a sore or scab to be seen, and the skin and flesh appeared to be perfectly sound. She was washing her feet with water, the cuticle itched, she scratched, and blood began to flow. The opening through the integuments was about two inches above the malleolus externus of the right leg. I bound up the part, and it completely healed in four or five days.

It is now more than one year since that hemorrhage occurred; there is a small cicatrix perceptible, but that does never smart or itch, and no pulsation of an artery is sensible to the touch. This patient has a very large leg, the lower part near her ankle is remarkably so; she has some appearances of being of a scrofulous habit of body, and one of her children has, at present, decided marks of scrofula.

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*Poisonous effects of a Crab.*

In the morning of the twenty first day of August, Mr. W. K. eat a crab before breakfast, and on an empty stomach. About ten minutes afterwards, he sat down and drank one cup of coffee, and eat half a slice of bread with butter. By

the time those articles were taken, it was perhaps fifteen minutes after consuming the crab; when, he was suddenly, while sitting at the table, attacked in the following manner: a disagreeable prickling and tickling sensation, attended with a constant cough and rattling in the throat; the patient compared his feelings to those which are commonly produced by a portion of drink or food, accidentally slipping into the larynx. In one minute or two from the commencement of those complaints, a severe oppression at the breast, and sense of suffocation came on: there was an obstruction for a time to a free and regular act of inspiration, and he thought he must die immediately. An inspiration after great efforts succeeded and brought temporary relief and ease; the expiration was not impeded, but the time coming for another inspiration, he could not, agreeably to his own expression, draw his breath for a while, and when he did, it was done with very great difficulty, as if there were some obstacle in the air passage. After a few similar attacks, his tongue began to swell, and in a few minutes its bulk was so great, that he could not with convenience keep it all in his mouth. His lips at the same time swelled, the under one more than the upper; they seemed to be expanded with blood, for both were of a crimson colour. When the sense of suffocation was very urgent before I saw him, some brandy was swallowed which was succeeded by relief from that alarming symptom. I arrived soon after the brandy was taken. An emetic of Ipecacuanha and antimonium tartarisatum was quickly administered, which operated eight or ten times. He drank about two quarts of warm water during its operation, which completely cleansed his stomach, and to appearance evacuated every particle of the crab. The first discharge from his stomach afforded ease and freedom to respiration, and the swelling of his lips and tongue, during the remainder of the day, subsided in a gradual manner: at night the tumefaction had entirely disappeared, and he then complained only of some soreness and debility. The next morning he was perfectly recruited, and able to attend to his usual employments.

After the emetic operated, at which time anxiety of mind and sense of danger were past, his lips were yet greatly swelled, and he had a sensation of his tongue being so likewise; but the natural size of that organ being unknown, the degree of its morbid state could not be determined with precision. This patient did not swallow any thing after eating the crab until he sat down at his table; and the symptoms were not



produced by any thing pernicious in the coffee, because his relations drank of the same more than he did, and kept perfectly well. No lurking complaint had any agency in producing the disease, as he had been before, for a great length of time, very healthy. The crab was purchased ready boiled at the New-Market, which stands at the foot of Catharine street.

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*On the Wax Tree of Louisiana.*

An interesting memoir on the wax tree of Louisiana, has been drawn up by *Charles Louis Cadet*, of the college of Pharmacy at Paris. The following are his observations on the utility of the wax which the tree affords.

The wax, says he, is sufficiently abundant to compensate the care and expence of cultivating it; for a bush in full bearing yields from six to seven pounds of kernels, one fourth of which may be obtained in wax. It is superior in quality to bees-wax.

The astringent principle of the myrica extracted in the large way, may be very useful in medicine and in the arts; it may to a certain extent be substituted instead of gall nuts in dyeing, hat-making, and probably in certain processes of tanning. The colouring principle appears sufficiently solid to deserve some attention; and if it be true that some fine cakes have been obtained from it in Louisiana, why may we not expect to find advantages from it in painting?

When this wax shall have become plentiful and cheap in the market, it promises great advantages in the fabrication of soap.

The traveller Kalm, says that the soap of it washes linen perfectly white.

Candles made of it afford a white flame, a good light, without smoke, and do not gutter; they emit when quite fresh a balsamic odour, which the inhabitants of Louisiana consider as extremely wholesome for persons in ill health.

Mr. Alexander, surgeon, says that the liquor, in which the grain has been boiled, and from whence the wax is procured, having been poured out and evaporated to the consistence of an extract, checks the most obstinate dysenteries.

There exist at Orleans and at Rambouillet, two orchards

of the wax tree, which contain more than four hundred shrubs.

The Louisiana wax tree, Mr. C. observes, is not the same species that grows in Pennsylvania, Carolina and Virginia. It rises higher and its grains are smaller.

In some places it is as large as a cherry, and its grain of the size of coriander. Its botanical name is *Myrica cerifera angustifolia*. That which grows in Pennsylvania, &c. is called *Myrica cerifera latifolia*.

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*Cultivation of the Sugar Cane in Georgia: described in an extract of a letter from Dr. Mitchill, to the Society of Arts in New-York, dated, Washington, Jan. 2, 1809.*

"By an arrival from Sapelo, in Georgia, Mr. Spalding has forwarded to Gov. Milledge, at Washington, some fine specimens of sugar cane, which grew upon that island. This plant is of the Otaheite species, and was introduced by Mr. Spalding about three years ago. The opinion of good judges is exceedingly favourable to the growth and sweetness of this cane. About three acres are already under cultivation, and the plants are of a very promising aspect. From the experiments made upon the cane, it is found to afford abundance of saccharine matter. The juice when boiled, has already afforded a very rich syrup; and when the crops shall be sufficiently enlarged and matured for the erection of proper works, no doubt is entertained of its being capable of crystallizing into good grained sugar. Sapelo is situated on the coast of Georgia, about half way between the mouths of the Savannah and St. Mary's rivers. It is supposed that all the land south of Sapelo, and which is favourable to the cultivation of Sea Island cotton, may be converted into sugar plantations."

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*Progress of finding Gold in North-Carolina.*

On several occasions in the course of our work, have we mentioned the Gold mines of North Carolina. By turning to our Second Hexade, vol. i, p. 307 to vol. ii, p. 439 and to vol. iv, p. 148, our readers will find a full and circum-

stantial account of the auriferous sands and streams of Cabarras county, and its neighbourhood.

The inhabitants in the vicinity of Rocky River continue their search for this precious metal; and their labour is rewarded by the quantity which they find. Besides the original place on Reed's farm, near Meadow Creek, they now work at Long Creek, upon Parker's plantation, about eighteen miles distant. A small company is formed at each place, the members of which examine the sands for gold, whenever the corn is hoed, the cotton weeded, and the agricultural business which engages them will permit. By conducting it in this way, they make not merely a saving, but a profitable business of it.

Within the last two years, the extraction of the gold by means of quicksilver has been introduced. The process of amalgamation thus preserves from loss all the dust and particles too fine to be distinguished by the eye, or separated by the fingers. Experience has proved, that a bushel of the sand of these waters will often afford gold to the value of half a dollar. A piece weighing sixty-seven pennyweights was found in July, 1808. Lumps amounting to four, six, and even fourteen pennyweights are sometimes found.

The common mode of working is said to be, first, to pick out all the visible grains they can find, and throw by the remaining mass into a heap, and afterwards, at some convenient time, to separate the minuter particles thoroughly by means of mercury. The amalgam so obtained, is then put into a proper vessel, and exposed to the action of fire; by which the quicksilver is distilled off in vapour, while the gold remains behind.

One of the spots where this lucrative business is carried on, is in Montgomery county; and it is believed by good judges, that the gold is scattered through an extensive region. A mass weighing a pound, was found within Anson county, in a cornfield. But experience only can determine in what quantity it exists, and whether it can be collected to advantage; for it is conceded by all practical men, that even this precious metal may be bought too dear.

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*American Ochres.*

Edward Mott & Co. of Philadelphia, at a very considerable expence and labour, have, from the several distances



of 65, 90, and 100 miles from Philadelphia, obtained and placed within their means of supply, in the natural state or pulverised, *twelve Ochres and Colours for Paints*; and have confidence, by the ensuing spring, to make considerable additions, viz.

Three different mineral blacks, which are found upon experiment made by competent judges, to answer for copper-plate printers, paper stainers, and they presume for all the purposes to which black can be applied as a colour or paint; except for printing ink, for which it appears of too dense a body—a quality nevertheless that evinces its value for other purposes—From which they prepare in liquid and cakes, and have ready for sale, an incomparable shining blacking.

Three different shades of yellow ochre, the brightest of which is declared by judges to be very little, if at all, inferior to the imported spruce yellow. From these three ochres they make, by calculation, three shades of red or Spanish brown; a native orange; a native umber, and a stone yellow; all very rich, delicate colours.

Most of the above colours they have ready for sale, at prices so low, that they trust to the quantity sold for remuneration (being enabled to supply the consumption of the United States with several of the articles.) That the public may judge the merit of an infant manufactory to claim their countenance and support, they have had painted three pannels of twelve compartments of specimens, each in their original and pulverized state; twelve compartments compounds of the first; and six compartments compounds of these and other American productions: one of which pannels is deposited at the Coffee House, one at Peale's Museum, and one at the manufactory in Moravian Alley.

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#### *Discovery of valuable Minerals.*

Every discovery of the internal resources of our country is at all times interesting, but more particularly so at the present period. With no common feelings of satisfaction, we announce, that in Jersey, our sister state, a variety of mineral substances have lately been found, which are supposed to be valuable.

Mr. Iobe Smith, by whose ingenuity and industry these discoveries have been made, and who is become the proprietor of most of them, submitted to our inspection the various ochreous earths in his possession, and also specified the peculiarities of each stratum. They are as follows.

1. *Mineral white*—or *Whiting*, of a quality equal to any that is imported, found within four feet of the surface; Stratum eight feet in thickness.

2. *Yellow Ochre*, of three different qualities; the first is earthy, and of a loose substance; the second is harder and of a deeper shade. The third is of a compact and a dense nature; for beauty it is nearly equal to the imported patent yellow. The strata of these are found within two or three feet of the surface, and the thickness varies from three to seven feet.

3. *Mineral Black*; its quality nearly equal to ivory black; found within six feet of the surface; the vein is nearly five feet thick.

4. *Mineral Green*; a beautiful colour found fourteen feet below the surface; stratum two and a half feet in thickness.

5. *Mineral Red*, which with a slight preparation is equal in appearance to a Spanish Brown; found within four feet of the surface; stratum five feet in thickness.

6. *Mineral Red*; of a very dense nature, and equal to any carmine-red imported; found three feet from the surface; stratum three and a half feet in thickness. Mr. Smith says that the supplies of these important minerals are inexhaustible; and he intends to issue proposals, to erect a company for the manufacture of these domestic paints found within the bowels of the earth in our own country; which if carried into effect, will supersede the necessity of importing them. It is well known a large sum is annually expended in foreign markets on this article.

An eminent coach painter in this city, and a miniature painter of equal eminence, have pronounced these paints, when properly prepared, equal to any imported into this country.

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#### Progress of Surgery.

The case of a successful operation for Aneurism of the Carotid artery, in one of the London Hospitals, commu-

nicated by our distinguished fellow-citizen, Mr. Vose, and inserted in this number, affords a brilliant example of the extension and improvement of an art, which is so efficaciously devoted to the relief of the misfortunes and miseries of mankind. We feel much indebted to that gentleman for his account of this interesting operation; and we are convinced that our readers will universally share with us in our sense of the obligation. And while we are gratified to hold up his enterprize and diligent research in the pursuit of professional objects, to the imitation of the students of Medicine and Surgery in this country; we are persuaded his return to New-York is anticipated by his acquaintance with great pleasure, and that he is destined soon to occupy a high rank in the estimation and confidence of the public.

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#### *Successful Treatment of Croup.*

We are informed by Messrs. King & Scott, two young gentlemen now attending the medical Lectures in the College of Physicians and Surgeons in this city, who previously had studied physic under the direction of Dr. John Stearns, of Waterford, in the state of New-York, that this gentleman is singularly successful in the cure of *Croup*, which is a very frequent disease in that district of the country. Rejecting in most cases the use of bloodletting and ordinary emetics, Dr. Stearns chiefly relies upon the exhibition of large doses of Calomel combined with cerated glass of Antimony. In a severe case of the disease, he generally orders twenty grains of calomel, with eight grains of cerated glass of antimony, for a child of a year old. The dose is sometimes augmented to twenty-five or thirty grains of calomel, with a proportionate quantity of the cerated glass of antimony, for a child of two years of age, or upwards. These doses will operate several times by vomit and stool, and generally produce a powerful effect on the disease; if necessary, they are repeated every eighth hour, till relief be obtained. Between the doses abovementioned, Dr. S. orders a strong decoction of seneka (*polygala senega*) to be given at short intervals. Under this management, the disease is generally so soon relieved, that he seldom finds it necessary to resort to other remedies.



The high reputation of Dr. Stearns, as an able and judicious practitioner, the remarkable success of these remedies, and the impressive character of energy which they exhibit, will doubtless recommend them to trial in the more alarming cases of this disease.

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*Wilson on Febrile Diseases.*

Mr. Oliver D. Cooke, of Hartford, Connecticut, has lately put to press, in connection with Messrs. Collins & Perkins, an extensive work entitled "*A Treatise on Febrile Diseases, including Intermitting, Remitting, and Continued Fevers; Eruptive Fevers; Inflammations; Hemorrhages; and the Profluvia: in which an attempt is made to present, at one view, whatever, in the present state of Medicine, it is requisite for the Physician to know respecting the Symptoms, Causes and Cure of those Diseases.*" By A. PHILIPS WILSON, M. D. F. R. S. Ed. Fellow of the Royal College of Physicians, Edinburgh, &c.

The British edition of this work, which consists of five volumes 8vo. will, in this American re-publication, be comprised in two, and will include the author's last performance on the *Theory of Fever*. The reduction of price to one third of that of the British edition, will bring this large mass of facts, principles and doctrines, compiled, with much labour and research, not only from British writers, but also from those of the best authority on the continent of Europe, within the limits of the American purchaser, and we doubt not, will procure it an extensive circulation in every part of the United States.

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*Prize Medals, offered by the Humane Society of Philadelphia.*

At a meeting of the managers, on the 8th instant, the decision of the Medical Professors of the University of Pennsylvania was received, containing information that they have carefully examined the three dissertations for the Prize Medals, and that "they are unanimously of opinion, that neither of them are entitled to the medals, as they do not appear to contain any *original* observations;" at the

same time remarking, that they are by no means destitute of merit as to arrangement and style.

The managers adopted their decision, and are again induced to offer,

For the best Dissertation on the means of restoring to life, persons apparently dead from drowning, *and more effectual than any yet in use*, a Gold Medal, value one hundred dollars.

For the second best, a Piece of Plate, value fifty dollars.

The Dissertations to be sent to the Secretary of the Society (post paid) by the first of January, 1810.

They may be written in the English, French or Latin language; to be accompanied with a sealed paper, containing the author's name and place of residence, which is not to be opened, unless the prize is decreed.

They shall be submitted to the judgment and decision of the Medical Professors of the University of Pennsylvania.

Although the first effort in this truly important research has not proved successful, yet when we consider its magnitude, it is believed no additional reason need be given for continuing the attempt to enlarge our knowledge, where the preservation of human life is the object. We hope no discouragement will arise from the failure of the late dissertations, in which ingenuity and learning are evident, as our aim is *to arrive at a knowledge of means of restoring life more effectual than any yet in use*; being persuaded that the discovery of such means will amply repay the most laborious investigation, and form a new epoch in the progress of humanity and science.

By order of the Managers of the Humane Society,

JOSEPH CRUKSHANK, *Pres.*

ISAAC SNOWDEN, *jun. Sec'y.*

*Philadelphia, June 15th, 1808.*

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#### *Treatment of Hydrophobia.*

The case of this disease, related by *Dr. Willoughby*, which we have inserted in the present number, bears a very interesting aspect. Whatever difference of opinion may arise concerning the real nature of the disease in this instance, and the propriety of considering it a case of *Rabies Canina*, or otherwise; the appearance and progress of the

symptoms, and the bold, decisive and powerful plan of treatment, which terminated so happily and in so short a time, cannot fail to arrest the reader's attention and strongly to impress him with the promptitude and vigour of the prescriber's practice. Perhaps no medicinal substance, possessing qualities equally active and diffusible, can be safely taken into the stomach in so large quantity, with respect to its usual dose, as calomel. And if on any occasion it would be allowable to transcend the limits of ordinary caution, and to try the utmost power of remedies, it surely must be in such alarming and deplorable cases as those in which there is ground to presume the existence or the approach of *canine madness*.

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*Insects giving root to Plants in Virginia.*

In Virginia the crysalides of insects have been discovered, on which vegetables were inserted and grown. The plants appear to derive their nourishment in this case from the animals. The great authority on this subject is Mr. Fourgeroux, in the Memoirs of the French Academy of Sciences for 1769. The vegetating fly of the Caribbee islands, has been specially considered by Dr. Watson in the English Philosophical Transactions for 1763. Dr. Hill has also examined into this curious subject with much pains; endeavouring to explain how animal bodies may give root to plants.

The result of the inquiries heretofore made, is that the larvæ of a species of CIGADA, called *tettigometra*, bury themselves under the leaves to undergo their metamorphosis, where many of them die. In that state, a species of FUNGUS, called *clavaria*, grows upon the creature, whose body is a proper soil for its support. Thus is formed the singular production of a plant, growing out of the body of an animal.

In Edwards's "Gleanings of Natural History," plate 196, are several figures of these extraordinary mixtures of animal and vegetable nature: and in 1808 W. A. Burwell Esq. of Virginia, discovered several *vegetating insects* on his own plantation. One of these he presented to Dr. Mitchill. This specimen was in complete form, except that the plant had been somewhat broken by handling. But the



animal is entire ; and has the appearance of a worm or caterpillar, whose sections, feet and head are very distinguishable.

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*Sulphuric Acid ascertained to exist in a free or uncombined State.*

A species of native brimstone evolved in the sulphureous springs of Clifton in the town of Farmington, has been discovered by Mr. Godon, to contain a portion of sulphuric acid in a separate or unconnected state. With a specimen of this singular production transmitted to Dr. Mitchill by Mr. Godon, is a letter dated Philadelphia, 20th Nov. 1808, in which is the following account of it: "In the phial which accompanies this, I send you a sample of native sulphur, impregnated with *free* sulphuric acid. I have enclosed it in a glass vessel, because a paper wrapper would be rapidly destroyed by the action of the acid. Some of the naturalists of Europe have already made mention of this acid being found in a state of *liberty* in volcanic countries ; but this fact appeared to have been wrapped in some uncertainty. After an examination of the mineral which I send you, there can remain no doubt upon the subject. It is sufficient merely to place the sulphur on a filter and pour a little distilled water upon it, to obtain a liquid which strongly reddens the tincture of turnsole, and immediately precipitates the muriate of barytes."

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*Hamilton on Purgative Medicines.*

Mr. Benjamin Johnson, Bookseller in Philadelphia, is about to re-publish, in connection with Messrs. Collins & Perkins, "*Observations on the Utility and Administration of Purgative Medicines in several Diseases.*" By JAMES HAMILTON, M. D. &c. This work will be re-printed from the second London edition, greatly enlarged by the author, and will appear in duodecimo ; it will also be reduced to one third of the price of the imported copy. With the view of rendering it more generally intelligible and useful, the Latin formulæ, which are numerous, will be translated

by Dr. James, of Philadelphia. It may be expected to appear by the first of March.

As a practical book, exhibiting a mass of sound and enlightened experience, unperturbed by the delusions of hypothesis, this performance stands unrivalled for many years past. The body of facts which it contains, forcibly impresses on the mind of the reader new views of diseases, unexpected results, and improved modes of practice. No physician, who is aware of the value of this work, will neglect to peruse and have it in his possession.

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FOREIGN.

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ON THE UNCERTAINTY OF THE SIGNS OF DEATH, AND  
ON PRECIPITATE INTERMENT.

*Dr. J. Bunnell Davis, a British physician, now prisoner in France, has lately published in the French language, an interesting work, 1st, on the abuses of premature interment; 2d, on the uncertainty of the signs of death; and 3d, on the means of resuscitation in cases of apparent death.*

THE first part contains general observations on the horrors of precipitate interment, and the improper treatment of the body after it is supposed to be dead. The latter abuse being infinitely more frequent than the former, is of much greater importance, and ought to be combated in the most strenuous manner. Different nations have different modes of treating their dead; but it is common, as soon as an individual expires, to expose the body to the cold air, to swathe it so tightly as effectually to prevent the renewal of respiration, to shut the eye-lids, and bind up the lower jaw. It is then laid upon a board, placed above the bed, and deserted until the time of interment, which is sooner or later, according to the custom of each nation; or it is put into a coffin, and the lid closely screwed down. Should a spark of life remain, this treatment would effectually

ally extinguish it. Solicitude for the living is urged as the apology for early interment; but what possible bad effects could arise from leaving the body without any binding whatever, and covered in such a manner as to give the greatest possible chance of recovery, should any vitality remain? Our author, however, very properly points out the assistance we may derive from attending to the precursory symptoms in forming our diagnosis of death. After incurable, lingering, epidemic or malignant diseases, it is but too certain; but we cannot be too cautious in forming our opinion when death appears to be the consequence of apoplexy, syncope, lethargy, hysteria, or asphyxia.

"The following phenomena are commonly considered as certain signs of death:

1. The suspension of respiration.
2. The rigidity of the limbs.
3. The abolition of sensation and motion.
4. The want of pulsation in the heart and arteries.
5. The spontaneous discharge of feces.
6. The collapse, opacity, and want of lustre in the eyes.
7. The coldness of the body.
8. The paleness or lividity of the countenance.
9. The relaxation of the lower jaw.
10. The regurgitation of liquids to the mouth.
11. The insensibility of the pituitary membrane of the nostrils.
12. The collapse, softness and wrinkling of the lips.
13. The temples hollow, and the nose contracted and thin.
14. Putrefaction."

Each of these signs is treated of at some length in separate chapters, and all of them are shewn to be equivocal except the last.

"Therefore, as soon as the evident signs of life cease, let us place the body in a warm dry bed, give a proper temperature to the air of the apartment, and employ every means for restoring it to life. If we judge from the nature of the disease which preceded the death, that these means are useless, we may content ourselves with keeping the body, until its decomposition become manifest; but let us never abandon an unfortunate person, who perhaps, by perseverance in the proper means, may be restored to life; should he recover, he will be a living monument of unexpected resurrection, and of the unceasing efforts of humanity. If a person die of malignant fever, scurvy, internal



inflammation, or any other disease which corrupts the fluids, soon after death the belly becomes blue and swelled ; black or livid spots appear on the limbs and back ; the eyes become hollow and soft, and discharge a puriform fluid ; the eye-lids grow yellow ; the mouth opens, because the lower jaw is relaxed ; the skin gets soft ; the muscles flaccid ; and, lastly, the whole body exhales a putrid odour. All these phenomena united, constitute an infallible proof of real death."

Dr. Davis commences the third part of his essay with a catalogue of the diseases which most commonly produce apparent death ; syncope, apoplexy, epilepsy, catalepsy, quinsy, child-birth, death of the fœtus in the womb, chincough, croup, gangrene, lethargy, hunger, convulsions, and eclampsy ; and of the accidents which have the same effect, falls, concussion, contusion, foreign bodies sticking in the œsophagus or trachea, strangulation, drowning, suffocation, cold, heat, intoxication, attenuated air of mountains and high situations, and mephitism.

He then gives an outline of the means by which resuscitation is to be attempted in cases of apparent death. In this little novelty was to be expected, but the following defence of the propriety of a national custom in a neighbouring kingdom, is too curious to be omitted.

"I have already said that hearing survived the other senses, and that this faculty continues when the functions, vital, animal, and natural, are suspended, and appear annihilated. It is on this account that the Romans and other nations of antiquity established the ceremony of *conclamation*, which consisted in calling by name three times, with a loud voice, the person supposed dead, after sprinkling cold water on his body. This practice was evidently founded in wisdom, notwithstanding the ridicule with which it was treated by Lucian and Erasmus. Its object was to ascertain the death and to prevent the living sepulture of persons only apparently dead, as Calepinus wisely observes at the word *conclamare*. Hence the metaphorical expression used by the Romans, *conclamatum est*, (the deceased has been called three times, and is deaf to the cries of the attendants) to express—*It is all over, there is no longer any hope*. A custom nearly similar still subsists in some counties in Ireland ; the relations and friends of the deceased surround the body and utter mournful cries, wishing him a good

voyage to the other world. This species of conclamation is called the *Irish howl*. According to Bruhier, a custom almost similar prevails in some provinces of France."

[*Edin. Med. and Surg. Journ.*]

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*Extract of a Letter on the Use of Arsenic, from Mr. Jenkinson, Oxford.*

Dr. Hull, of Manchester, had within a short space of time two patients affected with trismus tonicus, under circumstances as similar as possible. They were both young men, previously in robust health, and in both cases the disease was occasioned by a wound, I believe of the thumb. In the first, the usual remedies for tetanus (mercury, opium, &c.) were employed without success, and the patient died: In the latter, the same course was pursued exactly, without effect for some time, but the mineral solution, in full doses, was *superadded* to the plan; the spasms *then* began to give way, and the patient eventually recovered. I am sorry it is not in my power to detail the circumstances more minutely, but Dr. H. had time only for a verbal account of the fact, and that in the general way, (as I have repeated it to you,) when I had the pleasure of seeing him last. Nor is he likely, from want of leisure, to communicate the case except as I have given it, or I should not have used the privilege he allowed me, of including it in any of my own publications. [Ibid.]

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*Account of a spasmodic Disease, described in a Letter from Dr. THACKERAY, of Chester.*

MARTHA MARTIN, æt. 23.—At the age of 14, her face and breast used to be affected every month with an erysipelatous swelling, and the eye and breast would become black as if she had received a severe blow, accompanied by violent pain, vertigo, and a copious and limpid discharge from the nostrils. She had also violent spasms in her head, face, and different parts of her body; light made no impression on the pupils, on the eye-lids being opened; tickling of the nose excited no sneezing; no kinds of voluntary motion

were performed ; the jaw was now closed ; respiration difficult, and the pulsation of the arteries quick and irregular ; catamenia natural, and body open. The spasm also extended to the bladder, no urine being voided without the assistance of the catheter ; she often beat and bruised herself without sensation of it. In this situation she remained from one hour to four, eight, twelve, or even more ; then the respiration and pulsation became regular, her sensation recurred, and she found herself fatigued, but recollected nothing of what had happened during the paroxysm. She was often bled topically and generally, blistered, had setons, underwent two courses of mercury, which nearly destroyed her, being compelled to swallow the saliva ; and she took various nervous and antispasmodic medicines, as musk, camphor, opium, &c. &c. with but transient relief. She tried the warm and cold bath, electricity, &c. without effect. From the 26th of March, 1804, to September 22d, 1807, when she came under my care at the Infirmary, her jaw had been altogether locked, except when opened by art, and as soon as the force was removed, shut again with great violence ; and not a drop of urine had been voided without the aid of the catheter. I immediately ordered eight ounces of blood to be taken from the temporal artery, which was repeated thrice, and the jaw, neck, &c. to be rubbed morning, evening, and night, with the following liniment :

℞ Ol. olivæ  
Ol. terebinth. aa 3 iſs.  
Camphor. 3 ſs. Solve.

Internally the following draught,

℞ Infus. rad. valer. 3 viſs.  
Tinct. digit. gutt. x. ad xx.  
Sp. æth. vitr. comp. gtt. xv.  
Syrup. althacæ. 3 i. M.

Ft. Haust. quater quotidie ſumend.

was given by means of a tea-spoon, through an opening made by extracting two of the great molares, one on each side, the only way she was capable of receiving any sustenance. On the 18th of October, the mouth opened a little, but she could make no urine. About the 26th of December, her mouth was perfectly free of spasm, the water was passed without the catheter, and she was dismissed cured. By a letter a few days since, I find that she has had no return of her complaint.

[*Ibid.*]



*Remedy for the Hooping-Cough.*

The acetite of lead has been lately recommended for the hooping-cough; it may be given to children, without producing any bad effects on the stomach and bowels, and it is said to relieve the symptoms of the disease very speedily. The following formula has been employed:—℞. cerussæ acetatæ gr. iij. ad gr. v. syrup. violæ 3 ij. aquæ rosæ 3 ij. M. f. mistura. Capiat coch. parvulum 4ta vel 5ta quâque horâ. [Ibid.]

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*Efficacy of Gestation in Typhus; extracted from a Dissertation by Dr. Wake.*

The object of this dissertation, besides a general review of the remedies of Typhus, is to state the author's experience of the beneficial effects of gestation in that disease; a practice which at first arose out of necessity, but which has since been successfully imitated, though only to a very limited extent, in other instances. To the novelty of the treatment, Dr. Wake does not lay any claim. Celsus, he observes, describes it to have been the practice of Asclepiades. Of modern medical authors, Dr. Jackson is the only one\* who recommends gestation in fevers from actual experience; but his recommendation does not appear to have met with the attention to which it was entitled. Dr. Wake's observations of its utility were made some years before the publication of Dr. Jackson's work, and at a time when he was wholly unacquainted with its having been mentioned by any author.

In the spring of 1794, the British army began its retreat from Holland, and it became necessary, in consequence, to remove all the sick who were confined in the hospitals. In that of St. Guislain, among other patients, were several labouring under typhus fever. These were conveyed, in open carriages, to Dendermonde, a journey which was not completed in less than four days. During this time, several, who were dangerously ill, experienced a great remission of

\* Outline of the History and Cure of Fever, 1798, p. 287. Remarks on the Constitution of the Medical Department of the Army, 1803, p. 296.

their symptoms, and all became convalescent. One man, in particular, who had so severe a disease, that it had been determined to leave him behind, and who was removed only in consequence of his own earnest entreaties, in a few days after arriving at Dendermonde, was entirely out of danger.

During this journey the temperature of the air was mild, and the sky serene ; but, in the next spring, the same advantages were experienced in a very opposite state of the atmosphere. More than a hundred patients, labouring under fever, were removed, in open carriages, from Embden to Bremen, a journey of four days, and with the same happy event as before, though the weather was extremely cold, accompanied with frequent falls of snow. It was observed, that delirium in particular was abated by the locomotion.

From Dr. Wake's observations of the effects of the removal of these patients, he lays down the following rules respecting the use of gestation. 1. It is most beneficial in the last stage of fevers. 2. It should be performed in an open carriage, in order that air may be freely admitted, and that the patient may be amused by a succession of new objects. 3. It should be continued for eight or ten hours daily, till the patient begins to recover.

The following cases were communicated to Dr. Wake, by Mr. Jones.

October 10, 1803. *Joseph Bassett* had been ill seven days. An emetic had been given on his admission into the hospital ; afterwards a cathartic, and antimonial powder. His body had been sponged with vinegar and water ; camphor was exhibited ; and bark and tincture of opium. Porter was allowed, and afterwards wine. On this day, his pulse was very quick and feeble ; continual nausea ; inclination to stupor ; the countenance had an idiot-like stare ; he had passed an involuntary stool in the morning. In this state of extreme and alarming debility, he was carried in a spring-waggon seven miles into the country. On his return, he took some broth, and after it some wine, without nausea being produced. There was less stupor ; his countenance looked better ; and he had two voluntary stools in the course of the evening. 11th, He had a very good night. His pulse was not so quick ; no nausea ; his countenance looked better ; no appearance of stupor. The day before, he could not sit up in his bed without support ; and it was necessary

to carry him to the spring-waggon. This day he walked down stairs, and to the waggon, holding the arm of a comrade.

*William Finch*, a pauper at Ipswich, aged fifty-five, in the month of January, 1806, had been ill six days of typhus gravior; the medical attendant had said that his recovery was impossible, and discontinued his visits. The patient's wife applied to me; in consequence of which I visited him, and found him labouring under the following symptoms: Very feeble pulse; low delirium; subsultus tendinum; petechiæ; tongue dry, and dark-coloured. I asked his wife, if she could procure a cart and horse, to have him taken into the country five or six miles daily. The poor woman could hardly be prevailed upon to think me in earnest; but, upon my assuring her that carrying her husband out was the only chance left for his recovery, she promised to obtain a cart the next morning early. However, I told her, if she could not obtain a horse to draw a cart, she should have my bat-horse; so anxious was I that the remedy should be tried in this apparently hopeless case. Gestation was tried the next morning, with evident advantage; in the evening of that day there was less subsultus tendinum; and the pulse was less feeble. On the evening of the second day of using gestation, the subsultus tendinum was entirely removed; the delirium was very considerably abated; and the pulse was stronger. On the evening of the third day, all the alarming symptoms had ceased; and, in five days more, gestation was no longer necessary, the patient being convalescent. It is worthy of remark, that no medicine was administered to this patient except tincture of opium, and once half an ounce of tincture of rhubarb.

*Utility of Gestation in Scarlatina.*

A young gentleman, at school here, took the disease during an epidemic; it was among the worst cases of that fatal malady, and in the hottest weather in August. There were little hopes of his recovery; and he entreated to be taken home, a distance of eighteen miles. His parents came, and seconded his wishes, provided I would accompany him. Their coach was large; a bed was put in, and he laid on it. I followed in my carriage. The procession was slow. Twelve miles passed in half as many hours. We stopped to rest and dine. He was then revived greatly, and sat up a little at table, to please his parents. At length the journey ended, with his greater amendment. He slept comparatively well that night; was convalescent next day, and was well recovered in a week more. [*Ibid.*]